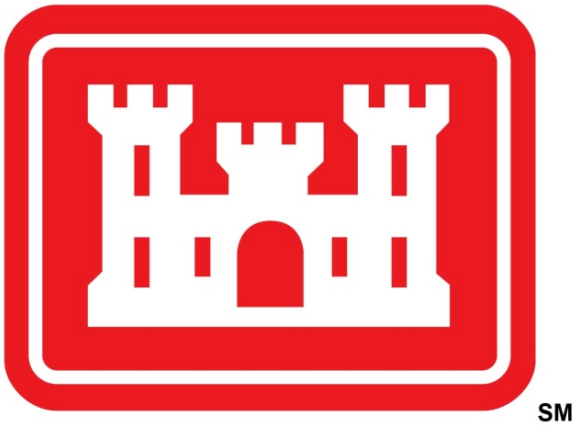

DESIGN ANALYSIS

U.S. ARMY
CRIMINAL INVESTIGATION COMMAND

(CATEGORY CODE 14114)

ADAPT-BUILD BIM PROTOTYPE OF THE

RA 24 FIELD OPERATIONS FACILITY FOR THE REGION

REPRESENTED BY FORT BLISS, TEXAS

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EXECUTIVE SUMMARY

This Design Analysis has been prepared for the U.S. Army Criminal Investigation Command (CIDC) RA 24 (RA 24) Adapt Build facility. The RA 24 building has been developed for a generic site at Fort Bliss, Texas. This document presents the design objectives, general information, design criteria and assumptions, and technical calculations for the project.

This Design Analysis has been developed in association with the Building Information Model (BIM) of the RA 24 Adapt Build facility. The project drawings are contained as 'sheets' within the BIM, with rare exception. The BIM Execution Plan is an important document which is to be used in conjunction with this Design Analysis.

The Design Analysis and Adapt Build BIM are intended as a guide to an A/E who is designing a CIDC project, and intended to establish a consistent baseline for new facilities. As a design professional the A/E is responsible for designing the project in accordance with all federal requirements and sound architectural and engineering practice. Creative interpretation of this work is encouraged as each future CIDC project shall be located at a unique location, and may have some unique requirements and features.

[NOTE to AE: The CIDC Building Design Criteria provides the basic guidelines for evaluation, planning, programming, and designing new and renovated CIDC facilities. The criteria contained in that document establish the baseline level of features to be provided in these facilities. Planning, design, operation and maintenance of CIDC facilities shall comply with Army Military construction (MILCON) requirements, MILCON Best Practices, Corps of engineers, Norfolk District (NAO) Design Guidelines, and the Activity's Installation Design Guide.

Design and construction shall use the latest Unified Facilities Criteria (UFC), Unified Federal Guide Specifications (UFGS) and other applicable codes, regulations, Technical Instructions and Manuals, and criteria. The document is intended to supplement other applicable codes and standards, without repeating the common requirements found in those documents.

Note that the design shall comply with ANSI/ASHRAE 189.1 Standard for the Design of High-Performance Green Buildings.]

1 GENERAL DESCRIPTION

The U.S. Army Criminal Investigation Command (CIDC) is the Army's primary investigative organization and the premier investigative organization of the Department of Defense. The CIDC is responsible for conducting criminal investigations in which the Army is, or may be, a party of interest. Investigations range from death to fraud to computer crime, and can occur both on and off of military installations.

The CIDC deploys highly trained special agents and support personnel, a certified forensic laboratory, protective services units, computer crime specialists, polygraph services, criminal intelligence collection and analysis, and a variety of other services normally associated with law enforcement investigation activities.

The CIDC buildings are Category Code 14114 facilities. A Project Tracking Sheet is in Appendix A.

1.1 FACILITY DESCRIPTION

1.1.1 RA 24 Field Operations Building

The CIDC RA 24 (or RA 24) field operations buildings house command, operation and administrative functions assigned to the U.S. Army Criminal Investigation Command. The estimated occupancy of the RA 24 facility is 30 people.

The *front* of the facility is designed for visitors, CIDC agents, and administrative staff; the *front* of the facility also includes support areas such as Restrooms, Showers, and a Multipurpose Lounge. The *back* of the facility is designed for suspects (Waiting, Interview Rooms, and Polygraph Areas), Evidence (Collection, Processing, and Storage) and other support areas (Vault, Equipment Storage). The *front* of the facility shall be identified as the administrative area and the *back* of the facility shall be identified as the suspect area.

1.1.2 Vehicle Processing Building

The Vehicle Processing Building shall be located adjacent to the Field Operation Building. This building allows for control and inspection of vehicles in order to collect evidence. This evidence may be retrieved by disassembling and removing parts, taking samples, inspection of the vehicle, and/or draining fluids.

The Vehicle Processing Building is detached from the main building, and shall be located outside of the ATFP stand-off distance.

1.1.3 Building Occupancy

The CIDC RA 24 building is classified as a Business Occupancy (Group B). The Vehicle Processing Building is considered a Storage Occupancy – Moderate Hazard (Group S-1; Motor vehicle repair garages complying with the maximum allowable quantities of hazardous materials).

1.1.4 Building Construction

Based on building size, the construction type shall be Type IIB (Non-combustible, Unprotected) as defined by the International Building Code. The Vehicle Processing Building shall also be constructed as Type IIB (Non-combustible, Unprotected). Based on the location of the Vehicle Processing Building relative to the adjacent property line, as shown on the Site Plan, the West exterior wall of the Vehicle Processing Building is required to have a fire rating of 1 hour. (Also see section 2.6 Fire Protection)

1.1.5 Accessibility Requirements

The CIDC RA 24 facility is designed and shall be constructed to meet Department of Defense accessibility standards as presented in the ABA/ADA Guidelines.

1.1.6 Site Design and Construction

ABA/ADA compliant access from the parking areas and site walks to the building shall be provided.

Accessible parking stalls and pathways for both staff and visitor parking areas shall be provided.

Accessible vehicle parking signage and pavement markings shall be provided.

Parking areas located within the secure (fenced) government-vehicle parking area shall be used only by able-bodied personnel in government vehicles, and for storage of impounded vehicles retained as evidence, and are not required to meet accessibility requirements.

1.1.7 Facility Design and Construction

The main building entrance and secondary entrances, located outside of the secure (fenced) government vehicle parking area, shall be accessible.

Provide ABA/ADA required clearances and door approach clearances in the building main entrance as well as at secondary entrances located outside of the secure (fenced) government vehicle parking area.

Accessible drinking fountains and Multipurpose Lounge facilities shall be provided.

Accessible public restroom facilities, located near the Main Entrance, shall be provided.

1.1.8 Building Area

The maximum authorized gross building area for the RA 24 facility is 15,228 square feet. This area total includes both the RA 24 building (14,460 square feet) and the Vehicle Processing Building (768 square feet).

1.1.8.1 Area Definitions

Gross Area: Gross building area is measured to the outside face of exterior enclosure walls. Gross area includes floor areas, penthouses, mezzanines, and other spaces as noted below:

Half Space: Areas calculated as half space. Gross building area shall be calculated in accordance with TI 800-01 Design Criteria – Appendix B, CIDC:

Excluded Space: Some spaces are excluded from the gross area calculations, including roof overhangs used for weather protection, mechanical equipment platforms, and catwalks.

Net Area: Net area is measured to the inside face of the room or finish walls.

Net Area Requirements: Net area requirements for programmed spaces are included in this chapter. If net area requirements are not specified, the space shall be sized to accommodate the required function and to comply with code requirements, overall gross area limitations, and any other requirements.

1.1.9 Common Area

Public Restrooms are located adjacent to the Lobby area and shall comply with the ABA/ADA accessibility requirements.

Vestibules are provided as enclosed transition spaces between the outdoor environment and the building interior. A minimum distance of 7 feet is provided between the interior and exterior Vestibule doors.

Mechanical, Electrical, and Telecommunications Rooms: The Mechanical Room is designed to allow space for equipment maintenance and repair access without having to remove other equipment. Mechanical, Electrical and Telecommunications Rooms shall be keyed separately for access by maintenance personnel.

Exterior access only is provided for the Mechanical and Electrical Rooms. The size of the Telecommunications Rooms (TR) for the RA 24 facility complies with the minimum requirements of I3A (2.5.2) and ANSI/TIA/EIA-569-B. Because the gross area of the facility exceeds 10,000 square feet two Telecommunications Rooms are required.

Recycling Storage: A Recycling Storage area is provided in the building. The Recycling Storage area is sized to accommodate recyclable containers, with adequate circulation space to allow access to move each container in and out of the Recycling Storage area.

Materials to be recycled include paper, corrugated cardboard, glass, plastics, and metals. An area shall be provided for collection and storage of fluorescent and HID lamps and ballasts.

2 DESIGN REQUIREMENTS AND PROVISIONS

The CIDC Facilities Building Design Criteria provides the basic guidelines for evaluating, planning, programming, and designing new CIDC facilities. The criteria contained in this document establish the baseline levels of features, spaces and finishes to be provided in these facilities. Planning, design, operation and maintenance of CIDC facilities shall comply with Army Military Construction (MILCON) requirements, MILCON Best Practices (MBP), and Corps of Engineers, Norfolk District (NAO) Design Guidelines. Design and construction shall use the latest Unified Facilities Criteria (UFC), Unified Federal Guide Specifications (UFGS) and other applicable codes, regulations, Technical Instructions and Manuals, and criteria.

- U.S. Army Corps of Engineers Criminal Investigation Command (CIDC) Facilities Building Design Criteria, 12 December 2011
- Architectural Barriers Act (ABA/ADA) Accessibility Standard for Department of Defense (DoD) Facilities; as directed by Secretary of Defense Memorandum, 31 October 2008
- Army Regulation (AR) 405-70 Utilization of Real Property
- AR 420-1 Army Facilities Management
- AR 195-5 Evidence Procedures
- AR195-6 Department of the Army Polygraph Activities
- AR 190-11 Physical Security of Arms, Ammunition, and Explosives
- Technical Criteria for the Installation Information Infrastructure Architecture,
- (I3A Technical Criteria), dated February 2010
- Fort Bliss Installation Design Guide and East Bliss ADG
- Technical Guide for the Integration of the Secret Internet Protocol Router Network (SIPRNET) published by USAISEC Criteria
- UFC 1-200-01 Design: General Building Requirements
- UFC 3-120-10 Comprehensive Interior Design
- UFC 3-400-01 Energy Conservation (with 2008 revisions)
- UFC 3-520-01 Interior Electrical Systems
- UFC 3-530-01 Design: Interior and Exterior Lighting and Controls
- UFC 3-550-01 Exterior Electrical Power Distribution
- UFC 3-600-01 Fire Protection Engineering for Facilities
- UFC 3-580-01 Telecommunications Building Cabling Systems Planning/Design
- UFC 4-010-01 Department of Defense Minimum Anti-terrorism Standards for Buildings

- UFC 4-021-01 Design and O & M: Mass Notification Systems
- National Fire Protection Association (NFPA) Codes and Standards

2.1 SITE PLANNING AND CIVIL ENGINEERING

2.1.1 Site Planning and Civil Engineering

NOTE to Civil AE site designer from the developers of the Criminal Investigative Command (CIDC) prototype.

The site designer for the CIDC facility must have an understanding of the user's requirements, the governing design criteria requirements and the local requirements. You are responsible for integrating these elements (and more) into the final site design. The design shall be in accordance with CIDC Building Design Criteria, the US Army Corps of Engineers Design Guide, the Base Installation Design Guide, and the pertinent Unified Facilities Criteria.

The Criminal Investigative Command (CIDC) Building Design Criteria contains information specific to the user. Overall design guidance is located in Chapter 1. Site planning and civil engineering criteria are located in Chapter 3.

The USACE Norfolk District Design Guide (NAO DG) provides design criteria requirements for the development and preparation of the contract documents. These include plans, specifications and the design analysis. The NAO DG contains discipline specific sections (e.g. Civil, Architectural, Mechanical, and Electrical). Each section includes a detailed outline of the criteria requirements for the corresponding discipline.

Project Specific Information

The CIDC Adapt/Build documents were developed to varying levels of design effort. The Architectural component was developed to about 60%. The remaining engineering disciplines, with the exception of Civil, were developed to between 30%-35% design levels. Without a specific site to reference the Civil portion was limited to a 10% design level. The Civil AE is responsible for developing the site design from site selection to final development after a specific site has been selected.

The site plan depicted in the Adapt/Build prototype is a schematic site plan. It indicates the general quantities and relationships of visitor parking, staff parking and secure government vehicle parking as well as antiterrorism/force protection (ATFP) setbacks and unobstructed zones around the building.

The following comments are intended to emphasize and clarify certain design elements for the site designer:

1. *Site Geometry:*
    a. *The portion of drive between the staff parking and the visitor parking may be omitted if access to both can be otherwise accommodated (i.e. by virtue of location on a corner lot) and if the Local Authority Having Jurisdiction (AHJ) does not require it for emergency perimeter access.*

2. *Secure Government Vehicle Area*

a. *There are two vehicle access points depicted on the prototype site plan. One is a sliding motor-operated gate. The other is a double swing gate.*
    i. *The emergency double swing gate access need not be provided if not required by the AH. The designer is to verify these requirements. The preference is generally to omit this feature if not required by the AHJ.*
    ii. *The sliding motor-operated vehicle gate with access control. Site designer to confirm type of security access (key pad, card reader, etc) with user. Coordinate fire department access requirements with the Base Fire Marshall.*
b. *The striped area in front of Vehicle Processing Building entrance is intended to provide maneuvering room for tow trucks delivering vehicles for processing.*
c. *The location of outdoor mechanical/electrical equipment, including transformer and future mobile generator may only be adjusted in consultation with the CIDC proponent and the USACE CoS District and upon written consent of both. These items must remain within the CIDC secured area.*
d. *The fence around this area is to be 8 feet high with no barbed wire on top.*
e. *There are two sizes of parking spaces in the secured parking area: government sedan (9'x18') and HUMVEE (12'x18'). The designer is to design for the number of each vehicle type, developed in collaboration with the user.*

3. *Vehicle Processing Building*
    a. *Note the vehicle lift. The designer should consider this when pursuing a geotechnical investigation of the site.*

4. *Weapons Clearing Barrel*
    a. *Two weapons clearing barrels shall be located on site. One shall be located at the entrance to the building from the secure government vehicle area. The other shall be located at the entrance to the building from the Staff parking area. Confirm the exact location at each entrance with the user.*

5. *ATFP*
    a. *The building is currently classified as "Inhabited" for Stand-off distance determination in accordance with the definitions provided in UFC 4-010-01 dated 9 February 2012. These plans are based on the prototype. The designer is responsible for confirming building classification based on current version of UFC 4-010-01.*

2.1.2 Site Lighting

The backlight and glare ratings of building-mounted luminaires and all other luminaires shall comply with ASHRAE 189.1-2009, Table 5.3.3.2B and Table 5.3.3.2A, respectively.

All exterior lighting shall comply with either the maximum uplight ratings of Table 5.3.3.2A or the uplight requirements of Table 5.3.3.3, both of which are found in ASHRAE 189.1-2009.

Site lighting sources shall be fluorescent and metal halide with good color rendition. Outdoor lighting levels are accordance with the Illuminating Engineering Society of North America (IESNA) Lighting Handbook illumination levels.

Site lighting shall be controlled by photocells, motion sensors, and timers for energy conservation. Coordinate the site lighting design and control with the Base (Installation). Exterior lighting for the main entrance and lighting for the building identification sign shall be on at night. All other site lighting shall be controlled by motion sensors.

2.2 STRUCTURAL ENGINEERING

2.2.1 General

CIDC RA 24 is a one-story steel framed structure with a spread footing foundation. The building is located at the Army base in Fort Bliss, Texas, 31.801847°N 106.424608°W.

The footprint of the building is rectangular in shape and measures approximately 76 ft by 175 ft. The building walls, both interior and exterior, are non-load resisting elements except for wind cladding or designed lateral pressure.

2.2.2 Framing System

The building is a steel framed structure with hollow structural section (HSS) steel columns and wide flange steel beams at the eave elevation. Triangular cold formed steel trusses shall form the hip roof profile.

Braced frames provide lateral load resistance and columns are designed with fully pinned fixity at the base.

A steel frame structural system is selected for the CIDC prototype buildings as it is the most common type of structural system throughout the United States, and common in many parts of the world. Alternative structural systems include cast-in-place reinforced concrete and load bearing masonry. While these systems are used in some geographic areas, they are not common in all areas where a prototype building may be constructed.

A steel frame system has the advantage of allowing relatively flexible interior planning. For the prototype Battalion Headquarters, developed for Fort Lewis, Washington, the steel frame system is selected based on the seismic requirements of this region. A load bearing masonry system is too heavy for use in high seismic areas. In contrast, the steel frame structure is very efficient.

The typical roof form of the prototype buildings is a hip or gable roof form with a slope of 4:12 to 6:12. This roof form is commonly and efficiently constructed with prefabricated light gauge steel trusses.

A precast concrete structural system is not considered a good choice for the prototype, since the CIDC buildings are relatively small (the largest is approximately 16,000 square feet). In addition, the cost effectiveness of this type of system is extremely dependent on the proximity of the site to a precast concrete plant.

Another advantage of a steel frame system is that steel is a commonly recycled product. It is likely that a new CIDC building built with a steel frame would have a high content of recycled material. The American Institute of Steel Construction estimates that structural steel beams and columns produced at U.S. mills has a recycled content above 80%. In addition, when the building is dismantled in the future, 50 or more years from now, the steel structural components can be easily recycled (or reused). Masonry and concrete structures do not have the same environmental advantages.

The Vehicle Processing prototype buildings utilize a load bearing masonry wall as the main structural system, and prefabricated light gauge steel trusses for the roof. This system is selected as the building is small, and the required interior finish is painted concrete block. This is a durable interior finish; if the building were framed in steel providing a durable interior finish would be expensive. The most likely choice would be cement plaster applied to a cement board base installed on steel studs.

2.2.3 Foundation

Gravity load and lateral load are delivered to the columns that are supported by the concrete footings. Typically the top of footing shall be 1.5 ft below finished floor for interior and exterior footings. The design frost line is 0 inches below soil cover.

For gravity loads (Dead and Live Loads), strip and column footings supported on undisturbed native soil stratum or structural fill with proper compaction can be designed for net allowable soil bearing capacities of 2,000 pounds per square foot (psf) for service loads. Allowable soil bearing capacities for transient loads (Wind and Seismic Loads) are permitted to increase by 30% to approximately 2,700 psf.

The ground level slab-on-grade shall be designed to meet the load requirements. The floor slab shall be designed as “floating”, ground supported and without rigid connections to columns and perimeter walls. Contraction joints are provided to control shrinkage crack pattern. Although the slab is designed as unreinforced slab, 0.1% of steel reinforcement is provided by either wire mesh or rebar. A vapor barrier shall be provided under the concrete slab.

Final foundation design shall be confirmed based on the findings of the geotechnical report.

2.2.4 Special Features

There are no special features of this project at this time. The framing is largely conventional. The seismic requirements at a Seismic Design Category C, while requiring attention, do not introduce any special requirements in the specifications or detailing as would be required in the higher seismic design categories.

2.2.5 Force Protection System

The building envelope shall meet the ATFP criteria governed by section B.3 of UFC 4-010-01. Glazed openings on the exterior walls shall be designed for blast pressure. Since the building is within a controlled perimeter and has a standoff distance of 82 feet the structural frames for the glazed openings shall therefore be designed for type II explosive. The design criterion shall be “low level of protection”.

2.2.6 Fire Resistance

A Fire Rating of 0.0 hours has been assigned to column and roof elements. (Also see section 2.6 Fire Protection)

2.2.7 Design Criteria

This building satisfies the design specifications of IBC 2006 and ASCE-7.

2.2.8 Load Assumption

2.2.8.1 Dead Load

Actual calculated weight of permanent construction per SEI / ASCE-7.

2.2.8.2 Live Load

Minimum live load allowances are determined per IBC and parameters provided by USACE NAO.

2.2.8.3 Snow and Roof Live Load

Design Ground snow load is 5 psf. The roof live load of 20 psf shall control over the Flat Roof Snow Load of 3.5 psf. The effects of snow drift and unbalanced snow load are not considered due to the geometry of the roof.

2.2.8.4 Wind Load

Basic wind speed shall be 90 mph, based on a 3-second gust, and Importance factor 1.00, Exposure Category “C”. Buildings are designed as enclosed structures.

2.2.8.5 Seismic Load

According to the calculation from USGS, Ss=31.00%g and S1=10.00%g for this site. This yields a Seismic Design Category C.

Site Class D has been chosen at this time. Seismic loading shall be confirmed using the findings of the geotechnical report.

2.2.9 Material Properties

2.2.9.1 Concrete Strength

Footings	f'c = 4,000 psi
Foundation walls and pedestals	f'c = 4,000 psi
Ground floor slab	f'c = 4,000 psi
All concrete not otherwise specified	f'c = 4,000 psi

2.2.9.2 Reinforcing Bars

ASTM A 615 Grade 60, Deformed	fy = 60 KSI

2.2.9.3 Masonry

Design masonry assemblage strength	f’m = 1,500 PSI

2.2.9.4 Steel

Wide flange shapes - ASTM A 992	fy = 50 KSI

Tube shapes - ASTM A 500 Grade B	fy = 46 KSI
All other structural steel - ASTM A 36	fy = 36 KSI
Welding electrodes - AWS D1.1	E70XX

2.2.10 Structural Calculations

Structural calculations are contained in Appendix C.

2.3 ARCHITECTURE

2.3.1 General

The design shall be in accordance with the current version of the Unified Facilities Criteria UFC 1-200-01 Design: General Building Requirements and other applicable criteria, codes and standards.

2.3.2 Goals and Objectives

Overall architectural goals for the facility are to provide a functional, visually appealing facility that is a source of pride for facility users, and the installation, and which meets the functional requirements of the CIDC mission. The RA 24 buildings are designed and shall be constructed to be:

- compatible with the architecture in the East Fort Bliss District
- technically sound building components and systems
- a safe and healthy work environment
- durable and easily maintained over a 50 year projected life

2.3.3 Exterior Design

The exterior materials, roof forms, and detailing are based on the approved Installation Design Guide and are compatible with the local context. The finish colors are similar to other buildings in the East Fort Bliss District. The combination of regional vernacular architecture with state-of-the-art materials and systems creates a facility that excels in the area of sustainable design. The deep roof overhang minimizes passive solar heat gain on the South and West facades.

The exterior materials, finishes, and roof form of the Vehicle Processing Building shall generally match the materials, finishes, and roof form of the main building.

2.3.4 Entrances

Building entrances are readily identifiable. The arched covered entries at the South, North and West facades stand distinct from the rest of the building. Entry materials include standing seam metal roofing and a durable exterior insulation and finish system. Entrances shall be accessible. Secondary entrances are provided with a canopy roof for protection from adverse weather.

2.3.5 Exterior Windows and Doors

Windows shall comply with the requirements of UFC 4-010-01 Design: Minimum Antiterrorism Standards for Buildings. Exterior shading is provided by a wide roof overhang. Glazing shall contain special coatings (i.e. Low-E) to meet the energy performance requirements defined in section 2.5. Reflective glass coatings shall not be used.

2.3.6 Exterior Façade

The exterior envelope shall consist of an exterior insulation and finish system (EIFS), with the finish installed on rigid insulation board. Split-faced concrete block is used as a base course. Cold-formed

steel studs and sheathing provide the 'back-up' to the EIFS system. An integral drainage channel is installed between the sheathing and rigid insulation.

2.3.7 Roofing

The proposed roof system is an architectural standing seam metal roof with a 4:12 slope. The standing seam roof panels are installed over a water protection membrane and over roof sheathing. Fascia panels and ridge vents are fabricated from the same material as the roof.

2.3.8 Rain Water Harvesting

The rainwater harvesting system shall employ gutters, downspouts, and piping in order to harvest rain water and convey it to a single point of collection. At the point of collection, rainwater shall be transported through a vortex filter and stored in a below grade storage tank. Harvested rainwater shall be supplied to toilets and urinals, and used for irrigation and other non-potable water uses.

2.3.9 Architectural Louvers

Painted aluminum louvers with insect screens shall be used for outdoor supply air and exhaust/relief air. The louvers are designed and shall be located to comply with UFC 4-010-01.

2.3.10 Interior Volume

The common ceiling height throughout the facility is 9 feet above the finished floor (AFF). Larger spaces have higher ceilings; 10 feet or 10 feet 8 inches AFF.

The Vehicle Processing Building ceiling height is set at approximately 16 feet. This allows for a HumVee to be lifted to a height of 64 inches, using a mobile lift. Clearance above the vehicle is approximately 4 feet. All mechanical and electrical systems in the Vehicle Processing shall be installed below the finished ceiling.

2.3.11 Interior Doors and Frames

Painted hollow metal frames and stained solid core wood doors shall be provided in most areas. Hollow metal doors shall be provided at service areas. Double doors are provided when convenient for moving equipment.

2.3.12 Door Hardware

A card access system is used to control access to, and within, the building. Security locks are required for Arms Vault, and the Evidence Processing, Evidence Custodian and Evidence Depository Rooms.

2.3.13 Arms Vault

The Arms Vault shall be constructed from modular reinforced concrete panels. The Arms Vault shall include a day gate.

2.3.14 Vehicle Lift

A mobile column hydraulic vehicle lift shall be installed in the Vehicle Processing Building. Coordinate the capacity of lift with the largest vehicle anticipated by user to be processed.

The ceiling height in the Vehicle Processing Building is approximately 16 feet.

2.3.15 Acoustical Design

The acoustical design of the facility is important considering the sensitive nature of many conversations within the building. The requirements are based on ANSI/ASHRAE Standard 189.1 and the text Architectural Interior Systems by Flynn, Kremers, Segil, and Steffy.

To provide for sound privacy between spaces, partition and ceiling construction shall be constructed to meet these specific Sound Transmission Class (STC) ratings.

Administrative Offices	STC 40
Conference and Interview Rooms	STC 45
Polygraph Room	STC 50
SIPRNET	STC 50
Mechanical Room	STC 50
Conference Rooms	
when adjacent to Restrooms	STC 53
Conference Rooms	
when adjacent to Mechanical Room	STC 60

Background noise levels are controlled through the selection and placement of equipment and through a variety of other design techniques. An acceptable background noise level (defined by Noise Criteria Curve or NC) shall be provided based on the following criteria:

Conference Rooms	NC 30
Private Administrative Offices	NC 30
Polygraph Exam Room	NC 30
Open Administrative Offices	NC 35
Interview Rooms	NC 35

The Polygraph Exam Room shall be designed in accordance with Department of the Army Polygraph Regulation AR 195-6.

2.4 COMPREHENSIVE INTERIOR DESIGN (CID)

2.4.1 General

Comprehensive Interior Design (CID) for the project includes Structural Interior Design (SID) and Furniture, Fixtures and Equipment (FF&E). The SID and FF&E are outlined in this Design Analysis.

There are two separate functions in the RA 24 facility. The *front* of the facility shall be for visitors, CIDC agents, and administrative staff; the *front* of the facility also includes support areas including Restrooms, Showers, and a Multipurpose Lounge (Break Room). The *back* of the facility shall be for suspects (Waiting, Interview Rooms, and Polygraph Areas), Evidence (Collection, Processing, and Storage) and other support areas (Vault, Equipment Storage). The *front* of the facility shall be identified as the administrative area and the *back* of the facility shall be identified as the suspect area.

2.4.2 Structural Interior Design (SID)

Design goals for the finish materials used for ceilings, walls and floors include the following:

- aesthetically pleasing and functional finishes
- durability and ease of maintenance
- recycled and sustainable materials
- neutral or medium toned colors with the use of Fort Bliss / Southwest regional interior colors

2.4.3 Interior Environmental Quality

All adhesives and sealants used on the interior of the building, including those used for HVAC systems, shall comply with ASHRAE 189.1 Section 8.4.2.1.1 or 8.4.2.1.2.

Paints and coatings used on the interior of the building shall comply with ASHRAE 189.1 Section 8.4.2.2.1 or 8.4.2.2.2.

Floor covering materials installed in the building interior shall comply with

- Carpet: Carpet shall be tested in accordance with and shown to be compliant with the requirements of CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350). Products that have been verified and labeled to be in compliance with Section 9 of the CA/DHS/EHLB/R-174 comply with this requirement.
- Hard surface flooring in office spaces: Materials shall be tested in accordance with and shown to be compliant with the requirements of CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350).

All office furniture systems and seating installed prior to occupancy shall be tested according to ANSI/BIFMA Standard M7.1 and shall not exceed the limit requirements listed in Normative Appendix E of this standard.

Ceiling and wall system emissions shall be limited. These systems include ceiling and wall insulation, acoustical ceiling panels, tackable wall panels, gypsum wall board and panels, and wall coverings. Emissions for these products shall be determined according to CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350) and shall comply with the limit requirements for either office or classroom spaces.

2.4.4 Interior Wall and Ceiling Finishes

Wall finishes, floor finishes, and ceiling finishes shall conform to the requirements of NFPA 101, U.S. Army Corps of Engineers CIDC Building Design Guide, United Facilities Criteria 3.120.10 Interior Design with change 1, and Unified Facilities Criteria 3-600-01 Design: Fire Protection Engineering for Facilities.

Opaque interior surfaces in daylight zones shall have visible light reflectance greater than or equal to 80% for ceilings and 70% for partitions higher than 56 inches (1.54 meters) in daylight zones, when ASHRAE 189.1Prescriptive Option 8.4 is chosen.

2.4.5 Ceilings

Acoustical ceiling tiles shall be 2 foot square tiles with a minimum recycled content of 60%. Square edge tiles are provided throughout the facility. The ceiling grid shall be a 15/16” wide metal, nonferrous, intermediate-duty system for lay-in acoustical panels. The finish of the grid shall be a factory-applied *white* paint finish.

Moisture resistant gypsum board shall be used for ceilings in the Restrooms, Showers, and Vestibules.

Impact resistant gypsum board is used for the ceilings of suspect areas, including Suspect Waiting and the Suspect Toilet Room. Impact resistant gypsum board is used for the ceiling of the Vehicle Processing Building.

The exposed gypsum board ceilings and exposed structure shall be painted with interior oil based semi-gloss enamel.

2.4.6 Walls

Gypsum drywall, with a minimum recycled content of 60%, shall be the common interior wall material. Impact-resistant gypsum wall board shall be used from floor level to a height of 4 feet in Corridors, Suspect Waiting Areas, Storage Rooms, and Visitor Waiting Areas. Fire-rated (type X) gypsum drywall shall be used for fire-rated walls. Cement board shall be used for shower walls.

Interior wall finishes shall be moisture and mildew resistant paint. Gypsum board surfaces shall be finished with a latex primer and two coats of eggshell finish of premium quality professional paint.

Concrete block walls shall receive a finish of one-coat of latex block-filler followed by one-coat of alkyd wall primer/sealer and one finish coat of oil based semi-gloss enamel paint.

Ceramic wall tile is used in toilet/shower areas in the administrative and suspect areas. Although no specific size is stated, where quarry, porcelain and ceramic is required in a design standard, it is

preferred to use larger tiles, such as 8x8 or 12x12 to minimize the grout joints; use when acceptable by the use of the space within the facility. Tile shall be through-color. Colored grout with sealer shall be used. Ceramic tile wainscot shall extend 60 inches above the finished floor (AFF).

Corner Guards shall be provided at outside corners at right angles. Corner guards shall be through-color polycarbonate or rubber.

Chair rail is used in the corridors throughout the administrative areas of the facility. Chair rails shall be solid hardwood, AWI custom grade with molded shaped profile.

2.4.7 Flooring

Carpet tile shall be used throughout the administrative areas of the facility which includes Visitor Waiting, administrative areas, Offices, Corridors, Conference Rooms, and Large Interview Rooms. Carpet tile shall have minimum density of 6600 and 26 oz weight with a severe wear rating; carpet tile shall be tufted cut and loop pile multi colored and patterned 100% solution dyed premium branded nylon with high performance backing. Straight rubber base is used with the carpet tile.

Carpet static control shall be provided to permanently control static buildup to less than 3.5 kv when tested at 20% relative humidity and 70 degrees F in accordance with AA TCC 134. The Telecommunications Rooms shall be finished with non-static resilient flooring.

Ceramic floor tile shall be used in toilet and shower areas in the administrative area of the facility. The tile shall be a minimum of 12” x 12” through-color and slip resistant. Colored grout with sealer shall be used. Tile base and other pre-manufactured trim pieces shall be used.

Resilient tile flooring shall be used in the Multipurpose Room, Evidence Processing, Evidence Custodian, Evidence Depository, Photo ID and Corridors in the suspect areas of the facility, and in Small Interview Rooms. Resilient vinyl bio-based composition tile (VCT) shall be through-color commercial grade. A rubber cove base shall be used with VCT.

Thresholds of nonferrous materials shall be used where there is a transition of flooring materials. Stone thresholds shall be used where ceramic floor tile adjoins another floor material.

Concrete floors shall be exposed in the Mechanical, Electrical, Arms Vault, and Telecomm Rooms. These floors shall receive a finish of two coats of clear hardener/sealer.

Concrete floors shall be exposed in the Suspect Waiting, Suspect Toilet, TOE, and Vehicle Processing Building. These floors shall have a colored *slip-resistant* epoxy finish.

2.4.8 Furniture, Fixtures & Equipment

2.4.8.1 Fixed Furnishings

FF&E procurement shall be through activity, construction contract, or procuring agency as stated in the project contract/ requirements.

All building entrances employ an entry mat system consisting of a scraper surface, an absorption surface, and a finishing surface. Window treatments shall be provided on every exterior window and at any interior view window where privacy is required. Window treatments are not provided in suspect areas. Blinds shall be one-inch wide horizontal room-darkening commercial grade aluminum blinds with hardware and controls.

Signage Assemblies consist of three primary elements; a structural rail, removable copy inserts and a wall mounted frame with trim. The signage rails shall be designed to hold injection molded plastic insert strips with integral color and tactile letters, symbols and Grade II Braille, to comply with ADA requirements. The rails and copy insert strips shall be snapped into a molded plastic frame which is secured to the wall surface. There shall be three types of signage: Identification, directional and ADA required.

Dry erase marker board shall be provided for Multipurpose Room.

Shower room lockers shall be constructed of solid polymer materials and stacked two high.

Architectural woodwork shall be provided in the Multipurpose Room and Photo ID area. All architectural woodwork shall be Architectural Woodwork Institute (AWI) custom grade; all exposed surfaces are clad with high pressure plastic laminate. Upper and lower cabinets shall be closed; countertops and splashes shall be made of solid surface materials.

2.4.8.2 Movable Furnishings

Develop design for FF&E in accordance with activity requirements with all movable furnishings required to produce an optimum functional facility. The design of FF&E package is to include the purchase and installation of collateral equipment. Those items which are considered movable include:

Wood Casegoods

Metal Furniture and Laminate-clad Furniture

Storage and Filing

Task Seating

Lounge Seating, Waiting Area Seating and Guest Seating

Interview Room and Conference Room tables

Waste Receptacles and Recycling Containers

Wall-mounted Clocks, Literature Racks

Small Appliances - Refrigerator and icemaker, microwave oven, commercial coffee makers shall be *ENERGY STAR* Equipment

Flat screen TV and ceiling mounted projector*s* shall be *ENERGY STAR* Equipment

2.5 SUSTAINABLE DESIGN

2.5.1 Design Criteria

CIDC facilities shall be designed and constructed in accordance with the following Department of Defense policies and directives on energy and resource conservation:

- Army Energy Security Implementation Strategy of 2009
- Department of the Army Memorandum: Sustainable Design and Development Policy Update (Environmental and Energy Performance) October 27, 2010
- ECB 2010-14 and ECB 2011-1
- Energy Independence and Security Act (EISA) of 2007
- Energy Policy Act (EPACT) of 2005
- Executive Order (EO) 13423 Strengthening Federal Environmental, Energy, and Transportation Management, 2007
- Executive Order (EO) 13514 – Federal Leadership in Environmental, Energy and Economic Performance, 2009
- Federal Leadership in High Performance and Sustainable buildings, Memorandum of Understanding (HPSBGP/MOU), 2006
- UFC 3-400-01 Energy Conservation (with 2008 revisions)
- USACE Army LEED Implementation Guide

The RA 24 facility at Fort Bliss is designed and shall be constructed as a High-Performance Green Building. The sustainable design approach for this facility is based on meeting two standards; compliance with ASHRAE Standard 189.1 and LEED Silver Certification. The ASHRAE Standard 189.1 is similar to the LEED-NC v3.0 rating system, but includes more mandatory provisions.

2.5.2 ANSI/ASHRAE/USGBC/IES Standard 189.1 Standard for the Design of High-Performance Green Buildings

2.5.2.1 Sustainable Sites

The site for the building project shall comply with the site selection criteria set by ASHRAE 189.1-2009, 5.3.1 *Site Selection*.

The site hardscapes shall comply with heat island effect mitigation criteria set by ASHRAE 189.1-2009, 5.3.2.1 *Site Hardscape*.

See ASHRAE 189.1-2009, 5.4.1.1 *Effective Pervious Area for All Sites* for site project compliance for pervious surfaces.

The building overhang provides the minimum shading requirement of 30% of the east and west above-grade walls (defined from grade level to the top of the exterior wall). Shading coverage is assessed at the 1000 hour for east walls and 1500 hour for the west walls during the summer solstice.

The backlight and glare ratings of building-mounted luminaires and all other luminaires shall comply with ASHRAE 189.1-2009, Table 5.3.3.2B and Table 5.3.3.2A, respectively.

All exterior lighting shall comply with either the maximum uplight ratings of Table 5.3.3.2A or the uplight requirements of Table 5.3.3.3, both of which are found in ASHRAE 189.1-2009.

2.5.2.2 Water Use Efficiency

2.5.2.2.1 Site Water Use Reduction

A minimum of 60% of the area of the improved landscape is bio-diverse planting of native plants and adapted plants other than turf grass.

A maximum of one-third of the improved landscape is irrigated by potable water.

Irrigation systems are controlled by either a qualifying smart controller that uses evapotranspiration (ET) and weather data to adjust irrigation schedules and complies with the minimum requirements or an on-site rain or moisture sensor that automatically shuts the system off after a predetermined amount of rainfall or sensed moisture in the soil. Qualifying smart controllers meet the following minimum requirements:

Irrigation adequacy – 80% minimum ET of the plant material

Irrigation excess – not to exceed 10% when tested in accordance with IA SWAT Climatological Based Controllers 8th Draft Testing Protocol

2.5.2.2.2 Building Water Use Reduction

Plumbing fixtures and fittings comply with the flush and flow rates requirements established in ASHRAE 189.1-2009, 6.3.2.1 *Plumbing Fixtures and Fittings*.

Additional water use requirements are noted in ASHRAE 189.1, 6.3.2.3 HVAC Systems and Equipment and ASHRAE 189.1, 6.4.2.1 Cooling Towers.

Measurement devices with remote communication capability are provided to collect water use data for each of the building subsystems; potable water and harvested rain water.

All building measuring devices, monitoring systems, and sub-meters are configured to the meter data management system. The meter provides, at minimum, daily data and records hourly water

consumption. The meter data management system is capable of electronically storing water meter, monitoring systems, and sub-meter data and creating user reports showing calculated hourly, daily, monthly, and annual water consumption of each measurement device and sub-meter. The meter data management system also provides alarm notification as needed to support requirements set by the Water Use Efficiency Plan for Operation (ASHRAE 189.1-2009, 10.3.2.1.2 *Water Use Efficiency*).

2.5.2.3 Energy Efficiency

To satisfy energy efficiency requirements, the prescriptive path listed in ASHRAE Standards 189.1-2009 and 90.1-2007 is being followed. Building envelope insulation requirements are being increased. A solar hot water heating system shall be used as a source of on-site renewable energy. To provide "free" cooling in the building a waterside economizer shall be used.

2.5.2.3.1 Climate Zone and Weather Data

Fort Bliss is located in Climate Zone 3-B HOT-ARID.

Outdoor design temperatures are derived from ASHRAE 90.1-2007:

99.6% Heating Design Temp	19 degrees F
1% DB Cooling Design Temp	98 degrees F
1% WB Cooling Design Temp	64 degrees F

The full-year weather data used for energy modeling is from the DOE-2 TMY-3 database, for El Paso International Airport.

2.5.2.3.2 Interior Space Temperatures

Interior design temperatures are 70 degrees F for heating and 75 degrees F for cooling. Temperature drift points are 55 degrees F and 80 degrees F.

2.5.2.3.3 Power or Plug Loads

Plug loads are assumed to be 0.75 watts per square foot, for energy analysis and modeling.

2.5.2.3.4 Electrical Power

ASHRAE 189, 7.4.5.1: The project shall contain automatic systems, such as demand limiting or load shifting, that are capable of reducing electric peak demand of the building by not less than 10% of the projected peak demand.

Feeder conductors shall be sized for a maximum voltage drop of 2% at design load.

Branch circuit conductors shall be sized for a maximum voltage drop of 3% at design load.

2.5.2.3.5 Lighting

The installed interior lighting power includes all power used by the luminaires, including lamps, ballasts, transformers, and control devices. Luminaires that are not included in the calculation are as follows: exit signs and furniture-mounted supplemental task lighting that is controlled by an automatic shut-off switch.

The luminaire wattage incorporated into the installed interior lighting is determined by the operating input wattage of the maximum lamp/auxiliary combination based on values from the auxiliary manufacturers' literature (for luminaires with permanently installed ballasts).

The interior lighting power allowance for the building is 90% of the value determined by using the "Space by Space Method" as described in ASHRAE 90.1.

The interior lighting is controlled by occupancy sensors that turn lighting off within 30 minutes of an occupant leaving a space. These automatic control devices are implemented such that lighting can be shut off in all spaces via "automatic OFF" controls. The occupancy sensors allow "manual OFF" control. In addition, all occupancy sensors allow bi-level "automatic ON" programmed to a low light level combined with multi-level circuitry and "manual ON" switching for higher light levels. Exceptions to the control strategy include the Mechanical, Electrical, and Telecomm Rooms, where the automatic shutoff of lighting could endanger the safety of building occupants.

Corridors, as a means of egress, do not exceed the 0.1 W per square foot limit, as defined by ASHRAE 189.1-2009.

The following spaces include controls that automatically reduce lighting power in response to available daylight by a combination of stepped switching and daylight-sensing automatic controls (capable of incrementally reducing the light level in steps automatically and turning the lights off automatically): Large Interview Room, Drug Suppression Team Room, and Admin/OPS Room.

Each space enclosed by ceiling-height partitions shall have a control device that independently controls the general lighting in the space. The location of the manual control device serving each space shall be easily accessible. The Conference Room does not use an automatic shutoff device as it shall have a multi-scene lighting control system.

Internally illuminated exit signs shall not exceed 5W per face.

Exterior lighting is controlled by a combination of a photo sensors, motion sensors, and a time switch. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least ten hours. Relay shall step down the total lighting power by 50% one hour after normal business closing and turn off outdoor lighting within 30 minutes after sunrise. The photosensors are interconnected with the relay.

Luminaires that are mentioned in the previous paragraph that operate at greater than 100W contain lamps with a minimum efficacy of 60 lumens per watt.

2.5.2.3.6 Shading Devices

The roof overhang projects 5 feet 3 inches beyond the façade in order to satisfy the ASHRAE 189 requirement for permanent projections on the East, West, and South façades with a projection factor (PF) of 0.5 or greater.

2.5.2.3.7 Building Orientation

Preliminary energy studies of the RA 24 building indicate that the estimated annual energy consumption is not significantly affected by changes in the building orientation. This is a result of the relatively low solar heat gain through the vertical fenestration, due to shading from the roof overhang, the limited area of glazing, and glazing performance.

2.5.2.3.8 Thermal Envelope

The building thermal envelope meets the minimum required R-values of insulation in framing cavities and for continuous insulation (c.i.) only.

The building envelope is designed and constructed with a continuous air barrier. All air barrier components of each envelope assembly shall be clearly identified on Construction Documents and the joints, interconnections, and penetrations of the air barrier components shall be detailed.

Opaque Element	Min. R-Value/Max. U-Value	Proposed R-Value
Roof – Attic and Other	R-49	R-60
Walls, Above-Grade – Steel-Framed	R-13 + R-5.0 c.i.	R-21 + R-15 c.i.
Slab-On-Grade Floors – Unheated	F-0.730, Ins NR	
Opaque Doors – Swinging	U-0.60	U-0.45

The building exterior wall assembly, roof assembly, and fenestration have specific composite STC or OITC rating requirements dependent on building location in proximity to specific noise profiles. See ASHRAE 189.1-2009, Section 8.3.3.1 for this criteria.

2.5.2.3.9 Fenestration

The proposed building includes relatively large roof overhang. The overhang provides shading of the East, South, and West façades of the building and qualifies as a permanent projection. Permanent projections are a requirement of ASHRAE Standard 189.1 Chapter 8, when the prescriptive option is followed.

The vertical fenestration area is 8.4% which does not exceed the limit of 40% of the gross wall area. No skylights are included in the RA 24 facility design.

See ASHRAE 189.1-2009, 7.4.2.9 *Fenestration Orientation* for fenestration area versus SHGC compliance for climate zone 3.

See ASHRAE 90.1-2007, 5.8 *Product Information and Installation Requirements* for insulation and fenestration labeling and testing requirements.

Fenestration Element	Max. U-Value/SHGC	Proposed U-Value/SHGC
Vertical Glazing – Nonmetal framing	U-0.45, SHGC-0.25	U-0.45, SHGC-0.25
Vertical Glazing – Metal framing (entrance door)	U-0.80, SHGC-0.25	U-0.45, SHGC-0.25

2.5.2.3.10 Infiltration

The following areas of the building envelope shall be sealed to minimize air leakage:

- Joints around fenestration and door frames
- Junctions between walls and foundations, between walls at building corners, between walls and structural floors or roofs, and between walls and roof or wall panels
- Openings at penetrations of utility services through roofs, walls, and floors
- Joints, seams, and penetrations of vapor retarders
- All other openings in the building envelope

Air leakage for fenestration and doors shall be determined in accordance with NFRC 400. Air leakage shall be determined by a laboratory accredited by a nationally recognized accreditation organization and shall be labeled and certified by the manufacturer. Air leakage shall not exceed 1.0 CFM per square foot for glazed swinging entrance doors. For roll-up doors, air leakage determined by test at standard test conditions in accordance with ANSI/DASMA 105 shall be an acceptable alternate for compliance with air leakage requirements.

Building entrances that separate conditioned space from the exterior are protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. The interior and exterior doors meet the requirement for a minimum distance of 7 feet between the two when in the closed position.

2.5.2.3.11 Roof Materials

The standing seam metal roof shall have a Solar Reflectance Index (SRI) value of 30, which satisfies the minimum initial SRI of 29 for a steep-sloped roof. The SRI is to be calculated in accordance with ASTM E1980 for medium-speed wind conditions. The SRI is to be based upon solar reflectance as measured in accordance with ASTM E1918 or ASTM C1549, and thermal emittance as measured in accordance with ASTM E408 or ASTM C1371. For roofing products, the values for solar reflectance and thermal emittance shall be determined by a laboratory accredited by a nationally recognized accreditation organization, and shall be certified by the manufacturer.

2.5.2.3.12 Building Equipment

Measurement devices (smart meters) with remote communication capabilities are provided to collect energy consumption data for building electrical loads (consumption and demand), natural gas consumption, and on-site renewable thermal energy. These meters shall automatically communicate with a data acquisition system, and provide daily and hourly energy data. The data acquisition system shall be capable of storing data for a minimum of 36 months and creating user reports showing hourly, daily, monthly, and annual energy consumption.

HVAC equipment efficiencies shall comply with ASHRAE 189, 7.4.3.1.

Fan system power limitations are noted in ASHRAE 189.1, 6.5.3.

Domestic hot water equipment efficiencies are listed in ASHRAE 189, Table C-12.

Electric motors comply with the requirements of the Energy Policy Act where applicable, as shown in ASHRAE 189.1-2009, Table C-13. Motors not included in the scope of the Energy Policy Act of 1992 have no performance requirements in ASHRAE 90.1-2007, Section 10 *Other Equipment*.

See ASHRAE 189.1-2009, 7.4.7.3 *ENERGY STAR Equipment* for equipment requirements within the scope of applicable ENERGY STAR program.

2.5.2.3.13 Control Strategies - HVAC

The cooling system is designed to distribute cooling at the zone level, therefore, the thermostatic controls for the equipment conveying cool air is set at the zone level. The heating system is controlled at the room level.

Automatic shutdown, temperature setback control and optimum start time control shall be provided by the Energy Management and Control System (EMCS).

Ventilation outdoor air dampers automatically shut during preoccupancy building warm-up, cool down, and setback, except when ventilation reduces energy costs (e.g. night purge).

All HVAC equipment shall be monitored and/or controlled through the energy management and control system.

2.5.2.3.14 Control Strategies - Service Hot Water

Temperature controls are provided that allow for storage temperature adjustment from 120°F or lower to a maximum temperature compatible with the intended use.

The recirculation pump for the hot water system is equipped with an automatic time switch set to switch off the water heaters when the facility is unoccupied.

Temperature control means are provided to limit the maximum temperature of water delivered from lavatory faucets in the Public Restrooms to 110 degrees F.

2.5.2.4 Renewable Energy

The RA 24 building shall include an on-site renewable energy system, with active solar collectors, to provide an estimated annual energy production of 12 KBtu per square foot of conditioned space, as compared to the minimum requirement of 6.0 KBtu per square foot.

2.5.3 LEED (Leadership in Energy and Environmental Design)

The RA 24 facility is designed to achieve LEED Silver Certification under the USGBC 2009 rating system. The Vehicle Processing Building does not meet LEED minimum program requirements, so it cannot be certified. However, the building shall be designed with a sustainable approach similar to the main building.

As presented on the LEED scorecard included at the end of this section there are 83 points that may be achievable. For SilverCertification, a minimum of 50 points are required; an additional 10 points are included (a 20% contingency) in the 'Y' column of the checklist since the project is currently at the concept design level.

The LEED credits which are being pursued include the following key items:

SS C4.2: Alternative Transportation – Bicycle Storage and Changing Room

Bicycle racks shall be located within 200 yards of building entrance with storage for 5% of building users and shower and changing facilities for 0.5% of full time equivalent occupants.

SS C4.4: Alternative Transportation – Parking Capacity

This project shall utilize Option 1 – non-residential with new parking. Preferred parking for carpools or vanpools for 5% of the total provided parking spaces.

SS C5.2: Site Development – Maximize Open Space

This project is for a military base, therefore there are no local zoning requirements in place. Option 2 shall be used in order to promote biodiversity by providing a high ratio of open space to development footprint.

SS C6.1: Stormwater Design – Quantity Control

Reduce the quantity of natural hydrology by reducing impervious cover, increasing on-site infiltration, reducing or eliminating pollution from storm water runoff and eliminating contaminants.

SS C6.2: Stormwater Design – Quality Control

The project shall include a storm water management plan to control the quality of storm water.

SS C7.1: Heat Island Effect – Non-roof

To minimize the heat island effect 50% of the site hardscape shall be selected in

SS C7.2: Heat Island Effect – Roof

A painted standing seam metal roof shall be used to reduce heat island effect. The Solar Reflectance Index of the roof shall be higher than a value of 29.

SS C8: Light Pollution Reduction

Project shall reduce input power, by automatic device, for interior lighting. The project shall minimize light trespass from the building and site, reduce sky-glow, improve nighttime visibility and reduce development impact from lighting on nocturnal environments.

WE C1: Water Efficient Landscaping

Landscaping is designed to reduce the use of potable water for irrigation

WE C3: Water Use Reduction

Water conserving fixtures are used to reduce potable water use for building sewage conveyance by 50%.

EA C1: Optimize Energy Performance

To evaluate the energy performance of the building a full year energy model shall be used.

EA C2: On-site Renewable Energy

Solar collectors and a hot water storage system shall be used to provide on-site renewable energy.

EA C3: Enhanced Commissioning

Energy-related building systems shall be commissioned in accordance with LEED requirements for both Fundamental Commissioning and Enhanced Commissioning. Commissioning process activities shall be completed for the following energy-related systems:

Heating, ventilating, air conditioning, and refrigeration (HVAC) systems, both active and passive, and associated controls

Lighting and daylighting controls

Domestic hot water systems

Renewable energy systems

Building Envelope

LEED 2009 for New Construction and Major Renovations

Project Checklist

CIDC Det24 - Fort Bliss, TX

22-Jun

Sustainable Sites — Possible Points: 26

Y	?	N			
Y			Prereq 1	Construction Activity Pollution Prevention	
1			Credit 1	Site Selection	1
	1		Credit 2	Development Density and Community Connectivity	5
		1	Credit 3	Brownfield Redevelopment	1
	6		Credit 4.1	Alternative Transportation—Public Transportation Access	6
1			Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
	3		Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
2			Credit 4.4	Alternative Transportation—Parking Capacity	2
1			Credit 5.1	Site Development—Protect or Restore Habitat	1
1			Credit 5.2	Site Development—Maximize Open Space	1
1			Credit 6.1	Stormwater Design—Quantity Control	1
1			Credit 6.2	Stormwater Design—Quality Control	1
1			Credit 7.1	Heat Island Effect—Non-roof	1
1			Credit 7.2	Heat Island Effect—Roof	1
1			Credit 8	Light Pollution Reduction	1

Water Efficiency — Possible Points: 10

Y			Prereq 1	Water Use Reduction—20% Reduction	
4			Credit 1	Water Efficient Landscaping	2 to 4
	2		Credit 2	Innovative Wastewater Technologies	2
3	1		Credit 3	Water Use Reduction	2 to 4

Energy and Atmosphere — Possible Points: 35

Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
8	5		Credit 1	Optimize Energy Performance	1 to 19
3			Credit 2	On-Site Renewable Energy	1 to 7
2			Credit 3	Enhanced Commissioning	2
2			Credit 4	Enhanced Refrigerant Management	2
3			Credit 5	Measurement and Verification	3
	2		Credit 6	Green Power	2

Materials and Resources — Possible Points: 14

Y			Prereq 1	Storage and Collection of Recyclables	
		3	Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
		1	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2			Credit 2	Construction Waste Management	1 to 2
	2		Credit 3	Materials Reuse	1 to 2

Materials and Resources, Continued

Y	?	N			
2			Credit 4	Recycled Content	1 to 2
2			Credit 5	Regional Materials	1 to 2
1			Credit 6	Rapidly Renewable Materials	1
1			Credit 7	Certified Wood	1

Indoor Environmental Quality — Possible Points: 15

Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
1			Credit 1	Outdoor Air Delivery Monitoring	1
		1	Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan—During Construction	1
1			Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1			Credit 5	Indoor Chemical and Pollutant Source Control	1
1			Credit 6.1	Controllability of Systems—Lighting	1
1			Credit 6.2	Controllability of Systems—Thermal Comfort	1
1			Credit 7.1	Thermal Comfort—Design	1
1			Credit 7.2	Thermal Comfort—Verification	1
		1	Credit 8.1	Daylight and Views—Daylight	1
		1	Credit 8.2	Daylight and Views—Views	1

Innovation and Design Process — Possible Points: 6

	1		Credit 1.1	Innovation in Design: Specific Title	1
	1		Credit 1.2	Innovation in Design: Specific Title	1
	1		Credit 1.3	Innovation in Design: Specific Title	1
		1	Credit 1.4	Innovation in Design: Specific Title	1
		1	Credit 1.5	Innovation in Design: Specific Title	1
1			Credit 2	LEED Accredited Professional	1

Regional Priority Credits — Possible Points: 4

			Credit 1.1	Regional Priority: EA C2	1
1			Credit 1.2	Regional Priority: SS C6.2 (79906)	1
1			Credit 1.3	Regional Priority: SS C5.2 (79906)	1
1			Credit 1.4	Regional Priority: WE C1 (79906)	1

Total — Possible Points: 110

60	25	10

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

2.6 FIRE PROTECTION

2.6.1 General

The fire protection design criteria for this facility include the current versions of the Unified Facilities Criteria 3-600-01 Fire Protection Engineering for Facilities, the International Building Code and the referenced National Fire Protection Association (NFPA) Codes and Standards.

A detailed Building Code analysis is provided on Drawing G-101. A number of assumptions were made in the completion of the Code Analysis. These assumptions include the following:

- The building shall be placed on a site with the minimum distances to the property lines (or assumed property lines) as indicated. In the event that the building is placed closer to a property line or another building than indicated in these documents, the exterior wall ratings will need to be re-evaluated.
- An increase of 300% in allowable building area was included for automatic sprinkler protection. No allowable increase was taken for the increased access around the building.
- Based on the building size, occupancy type, and installation of automatic sprinkler protection, the allowable construction type could be any type other than Type V-B. The most cost effective construction type that does not require protected construction (i.e. fireproofing) is Type ll-B. This construction type also offers the most flexibility for possible future expansion.
- There are no special locking arrangements (no locked doors) in the means of egress.

2.6.2 Building Occupancy

The CIDC RA 24 building is classified as a Business Occupancy (Group B). The Vehicle Processing Building is considered a Storage Occupancy – Moderate Hazard (Group S-1 Motor Vehicle Repair Garage complying with the maximum allowable quantities of hazardous materials).

2.6.3 Fire Protection

Fire protection shall be provided by a wet pipe sprinkler system in both the Main RA 24 Building and the Vehicle Processing Building. The system shall meet the requirements of UFC 3-600-01 and NFPA 13: Standard for the Installation of Sprinkler Systems. All sprinklers shall be quick response type.

Based on a single story building and Light/ Ordinary Hazard occupancy, it is likely that this building shall not require a fire booster pump. However, the floor plan does include space for a fire pump in the event that the water supply cannot provide the required pressure.

2.6.4 Fire Extinguishers and Cabinets

Portable fire extinguishers are provided in accordance with NFPA 10.

2.6.5 Interior Wall and Ceiling Finishes

Wall and ceiling finishes and movable partitions shall conform to the requirements of NFPA 101.

2.6.6 Fire Alarm/ Mass Notification System

The fire alarm system shall conform to requirements of UFC 3-600-01 and NFPA 101 throughout each structure. Fire alarm system shall consist of pull stations, audio and visual devices, control/annunciation panel and tamper and/or flow connection/supervision to the sprinkler system. Installation of Fire alarm system shall be in accordance with NFPA 72.

A combined Fire Alarm/Mass Notification system shall be provided in accordance with UFC 4-021-01, Mass Notification Systems. A voice evacuation system shall be used for the audible notification appliances. The speakers used for the fire alarm voice evacuation system also serve as the audible Mass Notification System. Dual clear lens / amber lens strobe lights (clear for “Fire” and amber “Mass Notification”) shall be provided for visual notification and must be installed in accordance with NFPA 72 and ADA guidelines. A micro-phone for voice announcements (local operating console) shall be provided at the main entrance and at the side entry (most remote from the main entry).

2.7 PLUMBING

2.7.1 General

The plumbing design of the RA 24 CIDC building at Fort Bliss complies with Unified Facilities Criteria (UFC) documents, the ABA/ADA Accessibility Standards for Federal Facilities, LEED – NC for New Construction Reference Guide 2009, and ASHRAE 189.1-2009 Standard for the Design of High-Performance Green Buildings.

The Suspect Toilet Room shall have a wall-hung stainless steel lavatory, wall-hung stainless steel water closet, and a non-breakable mirror. Accessories within this room shall be vandal resistant design,

2.7.2 Building Water Use Reduction

Low-flow plumbing fixtures are used to maximize water efficiency. Public lavatory faucets shall have a maximum flow rate of 0.5 GPM. Dual flush water closets shall be used with an effective flush volume of 1.28 gallons; and urinals shall have a maximum flush volume of 0.5 gallons.

2.7.3 Domestic Water Heating

An active solar hot water system is utilized to satisfy the domestic hot water load. The domestic hot water demand is approximately 560 gallons per day. This equates to a maximum domestic hot water load of approximately 644,000 Btu/day. Annual solar contribution is estimated at 183,322 kBTU.

The solar collectors are sized for the month of January, when the solar insolation (solar radiation intensity) is the lowest, in order to estimate solar collector area. This yields a solar collector area of about 400 ft². These collectors are placed on a parking cover for the parking spaces closest to the project building on the north side of the site. The parking shade is sloped to give the panels a south-facing orientation.

The solar storage tank is 250 gallons and includes a double wall heat exchanger. The solar hot water system is supplemented by a natural gas-fired boiler, one of the two boilers used for space heating. This equipment shall be located in the Mechanical Room.

2.7.4 Vehicle Processing Building

The domestic hot water system for this facility is separate from the main building. An instantaneous natural gas fired water heater shall be the source of domestic hot water.

Plumbing items include a continuous trench drain with continuous grating at the inside of the overhead door, and an emergency eye wash and shower.

A lavatory and a water closet are not required for the Vehicle Processing Building since the path of travel to the nearest restroom facility does not exceed 500 feet.

2.7.5 Metering

Smart Meters shall be used to monitor the energy and resource use of the facility. Smart Meters capture complex energy or resource use information and transmit this information on a real-time (or near real-time) basis.

2.7.6 Water Meters

Provide metering and sub metering of water use including separate metering of potable and harvested rain water systems.

2.7.7 Natural Gas Meter and Pressure Regulator

A gas meter and pressure regulator shall be provided. The gas meter shall be a 'Smart Meter' and report to the Energy Management Control System.

2.8 HVAC SYSTEMS

2.8.1 General

The mechanical design for all CIDC facilities shall be in accordance with the current version of the Unified Facilities Criteria (UFC) documents and all applicable codes and standards, including the ABA/ADA Accessibility Standards for Federal Facilities, LEED – NC for New Construction Reference Guide 2009, and ASHRAE 189.1-2009 Standard for the Design of High-Performance Green Buildings.

2.8.2 Facility Energy Conservation Requirements

Comply with ASHRAE 189.1 Chapter 7 Energy Efficiency using either the Prescription Option Section 7.4 or the Performance Option 7.5. Plug loads shall be included in building energy modeling but shall be subtracted in the final calculation of energy performance.

2.8.3 HVAC Systems

Ventilation rates shall meet the minimum requirements of the International Mechanical Code, and the current ASHRAE Standard 62.1.The HVAC system shall provide filtered outdoor air to all occupied spaces at air volumes that meet these minimum rates. A Demand Controlled Ventilation system shall be evaluated.

Provide permanent equipment to measure the outdoor air flow rate for each ventilation system, as required by ASHRAE 189.1

Outdoor air intake louvers or grilles shall be placed at least 10 feet above finished grade to meet the requirements of UFC 4-010-01 Minimum Antiterrorism Standards for Buildings.

Chlorofluorocarbon (CFC) based refrigerants shall not be used in HVAC and refrigeration systems.

Cooling towers shall be equipped with efficient draft eliminators in compliance with ASHRAE 189.1.

The HVAC systems shall be designed in accordance with the noise criteria (NC) ratings required for the RA 24 facility.

2.8.4 HVAC System Evaluations and Selection

The Baseline HVAC system, as defined by ASHRAE Standard 90.1 and used for energy modeling, is a packaged single zone constant volume system with direct expansion (DX) cooling and a fossil fuel furnace.

2.8.4.1 Proposed System 1

A system of vertical self-contained air-handling units, located in the Mechanical Room, shall be evaluated. Heat rejection options for this system include the use of an outdoor dry cooler or a closed loop cooling tower, located on grade. The outdoor environmental and climate conditions shall be evaluated to determine if a dry cooler or a wet cooling tower is the best selection.

A water-side economizer using fluid from the cooling tower or dry cooler for cooling directly, without the use of a refrigeration cycle, shall be evaluated.

Evaporative or 'swamp' coolers shall be evaluated.

2.8.4.2 Proposed System 2

An alternative system, consisting of an air-cooled chiller and interior fan coil units shall be evaluated. The air-cooled chiller shall be located on-site; waste heat recovery from the condenser shall be evaluated as an option.

Waste energy (waste heat) recovery systems shall also be evaluated.

2.8.5 Space Heating

A two-pipe fan coil system shall be evaluated for space heating. The heating system shall also include natural gas hot water (one condensing, one non-condensing) boilers and pumps, located in the Mechanical Room. This system is integrated with the active solar collectors and storage tank, also used for heating of domestic hot water.

2.8.6 Energy Management and Control System (EMCS)

The EMCS shall be a complete non-proprietary direct digital control (DDC) system for monitoring and control of the heating, ventilating, and air conditioning (HVAC) systems, lighting systems, and other building systems.

The EMCS system is designed as an Open system; the system can be repaired, upgraded, and/or expanded without dependence on the original system supplier.

The EMCS monitors and controls site lighting fixtures, the main RA 24 Building and the Vehicle Processing Building.

2.8.7 Emergency Shut-down

An air distribution system emergency shutoff switch, as required under UFC 4-010-01, shall be provided. This emergency switch is located near the main building entrance. Shut down shall also occur upon fire alarm activation.

2.8.8 Telecomm Rooms and SIPRNET Room

The Telecommunication Rooms are served by an independent and dedicated air-handling air-conditioning system. The nominal cooling capacity is 1-1/2 ton. The rooms shall be conditioned 24 hours per day, 7 days per week to a temperature of 72 degrees F (dry bulb) and to a relative humidity of 50%.

2.8.9 Evidence Depository

The Evidence Depository Room of the CIDC building shall be provided with a separate HVAC system in order to provide 24/7 space conditioning without operating the main HVAC systems. The separate HVAC system is also intended to contain fumes and odors within Evidence Depository.

2.8.10 Arms Vault

The independent system for the Vault shall include a dehumidifier. The system shall be located outside of the caged area of the Vault.

2.8.11 Mechanical Room

The Mechanical Room shall be provided with a combustible gas detector and carbon monoxide detectors.

2.8.12 HVAC Systems for the Vehicle Processing Building

Ventilation rates shall meet or exceed the minimum requirements of the International Mechanical Code, and the current version of ASHRAE Standard 62.1.

Provide permanent equipment to measure the minimum outdoor air flow rate for the ventilation system, as required by ASHRAE 189.1. Exhaust rates shall be in accordance with the current edition of the International Mechanical Code and the current edition of ASHRAE Standard 62.1.

For heating, the indoor design temperature shall be 60 degrees F db. For cooling; the indoor design conditions shall be 80 degrees F db and 60% relative humidity.

The space heating system shall be a natural gas fired overhead infrared radiant heating system. For comparison, a fan coil system using a natural gas fired boiler shall be modeled.

The Vehicle Processing Building shall also have both a combustible gas detector and carbon monoxide detectors.

2.9 ELECTRICAL

2.9.1 Lighting

The interior and exterior lighting is compliant to IESNA Standards and meets ASHRAE Standards 90.1-2007 and 189.1-2009. The lighting design was done using the software AGI32 v2.21 instead of the built-in REVIT lighting calculation software. Differences between the two programs are the method of calculation. AGI32 uses the point-by-point method as supposed to the zonal cavity method used by REVIT. The zonal cavity method is less accurate because it uses a ratio to find the foot-candles as opposed to the average of all the points, used in the point-by-point method.

The lighting design for individual rooms includes a task light in order to better meet the occupier's needs. The illumination levels (measured in foot candles) achieved with general purpose lighting and task lighting are as follows:

Private office	50fc
Lobbies, Lounges, Reception	10fc
Toilet	5fc
Corridor	5fc

Offices are provided with a recessed troffer direct fluorescent lighting system. The conceptual design analysis showed this to be the most efficient scheme. A troffer was chosen in order to meet the lighting power density ratio stipulated in ASHRAE 90.1 and 189.1. Transitional areas have recessed downlights. The Mechanical, Electrical, Telecommunication and TOE Storage Rooms shall consist of linear industrial fluorescent fixtures. The Restrooms shall feature wet location downlights to deal with the high levels of moisture in the room. Light switches and occupancy sensors shall be provided on the basis of ASHRAE 90.1 and 189.1.

The lighting for the corridors, open offices, and the exterior of the RA 24 building, including site light fixtures associated with the building, shall be controlled by a digital, IP-addressable, microprocessor-based, programmable lighting control system. The system shall contain an accurate time-based astronomical digital clock, network graphical user interface, and local overrides. The exterior fixtures associated with parking areas shall contain photoelectric cells and controllers, so that the total amount of site lighting can be reduced to minimal levels during non-business hours. Lighting associated with site security shall be controlled manually and shall be kept to minimal levels.

The Observation Room lighting fixtures shall include dimming controls.

The "space-by-space" method was used for the lighting power density (LPD) calculation for the building. LPD using this method is found by determining the interior power allowance (AHSRAE 90.1- 2007, table 9.6.1). Then multiply the floor area(s) of the space(s) times the allowed LPD for the space type. The

interior lighting power allowance is the sum of the light power allowances of all spaces. Calculations can be found in the Revit model.

2.9.2 Emergency and Exit Lighting

All areas of the building shall be provided with LED emergency and exit lighting and shall comply with NFPA 101. General purpose lighting fixtures, in the path of egress, include battery packs and lamps for emergency lighting. An emergency generator is not included in this facility.

2.9.3 Electrical Power

The electrical transformer for the RA 24 facility shall be a 225kVA, 13.8kV – 480Y/277V, liquid-filled pad mount transformer. A 480Y/277V – 3P, 4W secondary service shall be run underground from the transformer to the main distribution panel located in the Main Electrical Room, utilizing one(1) set of four (4) 500 MCM plus one (1) #4 AWG 600V 90°C copper conductor in EB Type-20 concrete encased ductbank. The primary service to the transformer shall be one(1) set of #2 AWG 15-kV 133% EPR copper conductor with one (1) 100% ground. Primary protection for the transformer shall be provided in accordance with the National Electrical Code (NEC). The size of the service transformer estimate was based on the requirement of UFC 3-501-01 3-2.3.1. This requirement states that "For building design no service transformer can exceed 12VA/ft²". However, since the calculated size was 182-kVA, the next commercially available size of 225kVA was chosen.

Power distribution for the facility shall emanate from the building's Main Electrical Room. Surge suppression shall be provided for the 480Y/277V main electrical service and the main 208Y/120V panel. 480Y/277V power shall be provided for lighting and large mechanical loads. It is anticipated that there shall be one (1) 400A main service panel, with a 350A main circuit breaker, plus one (1) 100A MLO panel for lighting and one (1) 480Y/277V-3P, 4W, 225A MLO panels for mechanical loads. From the 480V-3P, the power shall be transformed down to 208Y/120V for general convenience power receptacles and small mechanical loads via a 75kVA k-rated transformer (k-4). It is estimated that there shall be one (1) 208Y/120V-3P, 4W, 250A MCB MDP panel. There shall be a separate 208Y/120V-40A MCB panel for the vehicle processing building. Each Telecommunication Room shall receive one (1) 208Y/120V-100A MLO panel and there shall be one (1) 208Y/120V-150A MLO panel for general receptacle loads. 600V 90°C copper feeders for sub-panels shall be provided as required.

The facility shall contain one (1) 208Y/120V-3P, 60A twist-lock water-proof receptacle, one (1) 208Y/120V-3P manual transfer switch, and one (1) 208Y/120V-3P 60A main circuit breaker panel for the estimated mission essential power requirements. Mission essential power shall be provided by a portable generator, which shall be rented or leased. This portable generator is a future item, intended for, per the program requirements, the mission essential power and not for any life safety systems. It is estimated that mission essential load is about 15-kW.

CIDC requires that one freezer and one refrigerator be connected to the mission essential power system.

2.9.4 Grounding

The building structure shall be grounded in accordance with UFC requirements. A complete copper grounding system shall be provided. A ground ring shall be installed, connected to the building structure at each steel column. Neutrals of the electrical distribution system shall be bonded at the main distribution panels. The Vehicle Processing Building shall have a separate grounding system.

2.9.5 Lighting and Electrical Power for Vehicle Processing Building

Lighting fixtures for the Vehicle Processing Building shall include overhead and wall mounted fixtures, in order to illuminate the sides and underside of vehicles when on the lift.

The Vehicle Processing Building shall have a separate electrical distribution panel, fed from the main distribution panel. This panel provides power to lighting fixtures, receptacles, special items, and mechanical equipment. The panel shall be recessed mounted on the interior of the building and shall contain a main circuit breaker.

2.10 COMMUNICATIONS AND SECURITY SYSTEMS

2.10.1 Information Systems

Information systems shall consist of a complete end-to-end voice, data cable based functional design accomplished in accordance with the I3A Technical Criteria. Information system equipment provided to satisfy the service requirements of this facility shall meet the technical specifications and planning guidance found in ANSI/TIA/EIA-568-B and 569-A, as appropriate.

System provisions shall be compliant with the requirements of the Department of Defense (DoD) ABA/ADA Standards for accessibility.

Metallic separation is provided between telecommunication and power wiring in power poles, under floor conduit systems, and systems furniture raceways.

2.10.2 Telecommunications Systems

Telephone and data communications for the facility shall be distributed throughout the building from the Telecomm Rooms. Punch down blocks, Cat-6 4-pair cable, 50 µm multimode fiber optic cable, and telephone jacks shall be provided for the horizontal distribution as part of this project. For data communication, patch panels, Cat-6 4-pair cable and data jacks shall be provided. All cables shall be numbered by room and jack for both telephone and jack. Data cables shall be color-coded. Two (2) 8P8C, 568B type, shall be used for voice and data with appropriate label. Fiber optic adapters and connectors shall be TIA/EIA “SC” type (568SC). CATV and CCTV connections shall be provided through 75 ohm coaxial cable.

2.10.3 Data System

Data jacks shall be terminated on Category 6 110 RJ-45 termination panels located on racks in the Telecomm Rooms.

2.10.4 Information System Equipment

All equipment provided for the facility shall meet the functional standards found in the I3A Technical Criteria. The building's interior copper cabling shall be EIA/TIA 568B.

2.10.5 Protected Distribution System (PDS) Infrastructure

The PDS is designed and shall be installed in accordance with the I3A Technical Criteria. All PDS cable distribution and telecommunications systems comply with the I3A Technical Criteria (for design and allocations) and with the latest versions of ANSI/TIA/EIA 568B (for technical implementation).

The installation shall follow the requirements of ANSI/TIA/EIA-569-A for telecommunications paths and Equipment Room spaces. Provide dedicated PDS raceway space and Equipment Room space for the purpose of future fiber optic cable installation to each outlet location initially served only by copper cable(s). Provide space for future data and communication cabling. Provide I3A standard dual-jack voice/data outlets throughout core areas and the supply/administration areas; use I3A functional area outlet-densities to determine the outlet quantities. Provide data outlets for all planned computer

equipped desktops. Use of multiple-jack outlets to serve desktop locations, (i.e., up to four 8P8C RJ-45 type jacks) is typical.

2.10.6 Paging Systems

A zoned paging system shall be provided throughout the main RA 24 building and the Vehicle Processing Building, and shall be integrated with the telephone system. . The system shall allow paging to individual rooms and to all building areas. Select outdoor spaces, such as break areas, shall be on the public area system.

2.10.7 Audio/ Visual System

Audio/Visual systems are designed and shall be installed to comply with I3A Technical Criteria and the program requirements. Provisions (consisting of a power receptacle and conduit for signal wiring) for a GFGI projector shall be provided in each Conference Room. CATV shall be provided in Conference Rooms. The cable television system shall consist of cabling, pathways, and outlets.

RA 24 building CATV systems shall conform to applicable criteria including I3A Technical Criteria and UFC 3-580-01 Telecommunications Building Cabling Systems Planning/Design. A camera and microphone for audio/video recording shall be provided at each Interview Room.

2.10.8 Electronic Security System (ESS)

The security infrastructure shall be designed and installed to support Government-furnished equipment including ICIDS systems, CCTV surveillance systems, and restricted access systems. Provisions shall include dedicated power circuits, communications connections, raceways, and signal wiring for user installed devices.

Design of security systems shall also be coordinated with the Mandatory Center of Expertise (MCX) Electronic Security Center, U.S. Army Installation Support Center, Huntsville, Alabama.

All unclassified telecommunications systems and associated infrastructure shall be electrically and physically isolated from all classified telecommunications systems in accordance with NSTISSAM requirements. TEMPEST requirements shall be met on a per site basis dependent on the facility zone type and the equipment NSTISSAM level.

An alarm and closed circuit television (CCTV) system shall be provided. An alarm shall be placed at each exterior door and CCTV cameras shall be installed in Corridors and at building entrances.

2.10.9 Security Locks

Security locks are required for Arms Vault and the Evidence Processing, Evidence Custodian and Evidence Depository Rooms.

2.10.10 Clock System

Clocks shall be provided in Conference Rooms and in Visitor Waiting Areas.

2.10.11 Mass Notification System

Provide a mass notification system conforming to UFC 4-010-01 and UFC 4-021-01 for the purpose of providing real-time announcements in the immediate vicinity of the building during emergency situations. Coordinate specific system requirements with the user and the Installation.

The mass notification control panel shall be located in the office of the Duty Agent.

See section 2.6 FIRE PROTECTION

End of Section

APPENDIX A

PROJECT TRACKING SHEET

Facility Type Compliance Documentation:

PROJECT TRACKING SHEET

Item	Component	Min. Requirements	Proposed/Designed to
Project ID	Category Code	14114	
	Building Code used and year		N/A
	Facility Type (i.e. 1300 PP, DFAC, 1300 Trainee)	Criminal Investigation Command Field Operations Building Detachment 24 Fort Bliss, TX	N/A
	Building Gross Area	14369 f²	
	Design/Construction Method (i.e. Design-Build, Design-Bid-Build, Adapt-Build, Unique)	Adapt-Build	N/A
	Number of building stories	1	N/A
1. Roof	Insulation (R-Value)	R-49	R-60
	Surface reflectance	Note 1	
2. Walls	Insulation (R-Value)	R-13 + R-10 ci	R-21 + R-15 ci
3. Floors	Insulation (R-Value)	NR	
4. Doors	Assembly (U-Value)	U-0.600	
5. Infiltration	Bldg Envelope Air Leakage	Note 1	
6. Vertical Glazing	Window to Gross Wall (Percentage)	40%	≈8.4%
	Thermal transmittance	U-0.250	
	Solar heat gain coefficient	SHGC-0.40	
7. Interior Lighting	Lighting Power Density	LPD-0.9	LPD-0.79
	Ballast Type	Electronic	
8. HVAC	Air Conditioning (Cooling)	See Mechanical Design Narrative	
	Heating		
9. Renewable Energy		See Energy Narrative	
10. Energy Model	Energy Analysis Tools	TRACE 700	
11. Outdoor Design Temperatures	Dry-bulb and Wet-bulb Temperatures	99.6% - 19°F 1% DB - 98°F 1% WB - 64°F	
12. Indoor Design Temperatures	Dry-bulb and Wet-bulb Temperatures	H - 70°F DB H – 58.5°F WB C - 75°F DB C – 62.5°F SB	
13. Climatic Zone		3B	
14. Building Energy Density	kBTU/SQFT*year	Approx 40 kBTU/SQFT*year	

Item	Component	Min. Requirements	Proposed/Designed to
15. Peak Energy Usage Electrical Gas Other	KWh		
16. Annual Energy Usage Electrical Gas Other	KWh		
17. Tons of Annual Carbon Emission	Tons		
18. LEED Version and Rating	LEED v3.0 LEED Silver	50 points	60 points
19. LEED credits earned, with percentage in Water and Energy- Gross percentage of anticipated energy savings versus baseline- Gross percentage of anticipated water savings versus baseline-			

Notes:

1. List applicable criteria, minimum requirements, and actual provided requirements.
2. Provide detailed design narrative of system and approach to meeting energy and sustainable goals in design analysis, including all energy consuming equipment, components, and energy reduction features utilized to meet energy reduction goals. On tracking sheet provide Tons of Cooling and MBH of heating. Provide energy reduction due to use of renewable energy.
3. Provide values based on applicable criteria
4. Provide two baseline values for minimum as determined by EPACT 2005 and ASHREA 90.1 calculation methodologies. Proposed column shall reflect design values proposed.
5. Energy Analysis is to be performed using Trane Trace 700. All associated Trace data files ".TRC" files are to be provided on CD or DVD. Trane trace has an archive feature by which files can be bundled and restored for use by other's review and use. Other energy analysis programs are not acceptable.

APPENDIX B

ARCHITECTURAL CALCULATIONS

CORRECTED FINAL SUBMISSION
12 SEPTEMBER 2012

PARSONS BRINCKERHOFF
COMPUTATION SHEET

Subject: ENVELOPE U-FACTORS - Detachment 24 (Ft. Bliss)

Made by: JPB
Date: 01/30/12
Checked by:
Date:

ROOF

1. Exterior Air Film
2. Standing Seam Metal Roof
3. 3/4" CDX Plywood
4. Metal Deck
5. 9-1/2" Batt Insulation
6. 9-1/2" Batt Insulation
7. 5/8" Gyp Board
8. Interior Air Film

$R_1 := 0.17$ $R_5 := 30$

$R_2 := 0$ $R_6 := 30$

$R_3 := 0.94$ $R_7 := 0.56$

$R_4 := 0$ $R_8 := 0.61$

$$U := \frac{1}{R_1 + R_2 + R_3 + R_4 + R_5 + R_6 + R_7 + R_8}$$

$U = 0.016$

WALL

1. Exterior Air Film
2. 3" EIFS
3. 1/2" Airspace
4. 3/4" Plywood Sheathing
5. 6" Batt Insulation
6. 5/8" Gyp Board
7. Interior Air Film

$R_1 := 0.17$ $R_5 := 21$

$R_2 := 15$ $R_6 := 0.56$

$R_3 := 1$ $R_7 := 0.68$

$R_4 := 0.94$

$$U := \frac{1}{R_1 + R_2 + R_3 + R_4 + R_5 + R_6 + R_7 + R_8}$$

$U = 0.025$

FLOOR

1. Concrete Slab on Grade
2. Insulation - NR

PARSONS BRINCKERHOFF
COMPUTATION SHEET

Subject: ENVELOPE U-FACTORS - Det 24 Vehicle Processing

Made by: JPB
Date: 01/30/12
Checked by:
Date:

ROOF

1. Exterior Air Film
2. Standing Seam Metal Roof
3. EPDM
4. 3" Insulation
5. Metal Deck
6. Interior Air Film

$R_1 := 0.17$ $R_5 := 0$
$R_2 := 0$ $R_6 := 0.61$
$R_3 := 0$
$R_4 := 15$

$$U := \frac{1}{R_1 + R_2 + R_3 + R_4 + R_5 + R_6}$$

$U = 0.063$

WALL

1. Exterior Air Film
2. 2" EIFS
3. Air Barrier
4. 8" CMU
5. 4" Insulation
6. 5/8" Gyp Board
7. Interior Air Film

$R_1 := 0.17$ $R_5 := 14$
$R_2 := 10$ $R_6 := 0.56$
$R_3 := 0$ $R_7 := 0.68$
$R_4 := 1.11$

$$U := \frac{1}{R_1 + R_2 + R_3 + R_4 + R_5 + R_6 + R_7}$$

$U = 0.038$

FLOOR

1. Concrete Slab on Grade
2. Insulation - R-15 for 24 in.

ROOM DATA				OCCUPANCY DATA		
NUMBER	NAME	AREA	VOLUME	TYPE	LOAD FACTOR	LOAD TOTAL
001	ENTRY VESTIBULE	113 SF	1013.29 CF	NA	0	
002	VESTIBULE WEST	42 SF	376.29 CF	NA	0	
003	VESTIBULE NORTH	48 SF	428.61 CF	NA	0	
101	VISITOR WAITING AREA	282 SF	2534.22 CF	A-3	15	19
102	CORRIDOR	143 SF	1286.21 CF	NA	0	
103	JANITOR	36 SF	321.69 CF	NA	0	
104A	WOMEN	188 SF	1692.62 CF	B	100	2
104B	WOMEN SHOWERS	76 SF	688.24 CF	B	100	1
105A	MEN	188 SF	1689.28 CF	B	100	2
105B	MEN SHOWERS	76 SF	686.61 CF	B	100	1
106	DRUG SUPPRESSION TEAM OFFICE	637 SF	5735.25 CF	B	100	7
107	MULTI-PURPOSE LOUNGE	632 SF	5690.12 CF	A-3	15	43
108	CRIMINAL INVESTIGATION COMMAND OFFICE	152 SF	1368.06 CF	B	100	2
109	TELECOM ROOM 2	109 SF	979.04 CF	B	100	2
110	SMALL INTERVIEW ROOM #5	134 SF	1203.12 CF	B	100	2
111	CORRIDOR	325 SF	2924.86 CF	NA	0	
112	DRUG SUPPRESSION TEAM LEADER OFFICE	155 SF	1391.84 CF	B	100	2
113	LARGE INTERVIEW ROOM	252 SF	2271.95 CF	B	100	3
114	CORRIDOR	189 SF	1696.83 CF	NA	0	
115	STORAGE & SUPPLIES ROOM	166 SF	1491.30 CF	S	300	1
116	SMALL INTERVIEW ROOM #4	166 SF	1492.01 CF	B	100	2
117	SMALL INTERVIEW ROOM #3	161 SF	1450.51 CF	B	100	2
118	SECURE STORAGE	161 SF	1450.51 CF	S	300	1
119	CORRIDOR	628 SF	5650.73 CF	NA	0	
120	SMALL INTERVIEW ROOM #2	149 SF	1337.79 CF	B	100	2
121	SMALL INTERVIEW ROOM #1	151 SF	1360.32 CF	B	100	2
122	EVIDENCE CUSTODIAN OFFICE	177 SF	1596.21 CF	B	100	2
123	EVIDENCE DEPOSITORY ROOM	384 SF	3453.05 CF	B	100	4
124	DUTY AGENT OFFICE	153 SF	1376.22 CF	S	300	1
125	SUSPECT WAITING ROOM	139 SF	1247.28 CF	B	100	2
126	SUSPECT TOILET	57 SF	512.07 CF	B	100	1
127	OBSERVATION ROOM	125 SF	1128.66 CF	B	100	2
128	POLYGRAPH EXAM ROOM	142 SF	1279.24 CF	B	100	2
129	POLYGRAPH OFFICE	146 SF	1313.41 CF	B	100	2
130	PHOTO ID ROOM	116 SF	1040.85 CF	B	100	2
131	EVIDENCE PROCESSING ROOM	244 SF	2196.20 CF	B	100	3
132	TABLE OF ORGANIZATION AND EQUIPMENT STORAGE	484 SF	6709.17 CF	S	300	2
133	ARMS VAULT	90 SF	810.69 CF	S	300	1
134	MECHANICAL ROOM	650 SF	9019.26 CF	M/E	300	3
135	ELECTRICAL ROOM	149 SF	2060.90 CF	M/E	300	1
136	TELECOM ROOM 1	146 SF	2032.14 CF	B	100	2
137	SPECIAL AGENT OFFICE	185 SF	1663.55 CF	B	100	2
138	SPECIAL AGENT OFFICE	188 SF	1689.36 CF	B	100	2
139	CORRIDOR	874 SF	7862.15 CF	NA	0	
140	SPECIAL AGENT OFFICE	181 SF	1627.42 CF	B	100	2
141	SPECIAL AGENT OFFICE	187 SF	1682.96 CF	B	100	2
142	SPECIAL AGENT OFFICE	177 SF	1592.27 CF	B	100	2
143	SR TEAM OFFICE	187 SF	1682.96 CF	B	100	2
144	SR TEAM OFFICE	177 SF	1592.27 CF	B	100	2
145	SUPERVISOR TEAM OFFICE	187 SF	1682.96 CF	B	100	2
146	CRIMINAL INVESTIGATOR OFFICE	111 SF	996.84 CF	B	100	2
147	CORRIDOR	304 SF	2737.81 CF	NA	0	
148	SPECIAL AGENT IN CHARGE OFFICE	197 SF	1773.57 CF	B	100	2
149	CRIMINAL INTELLIGENCE OFFICE	114 SF	1023.56 CF	B	100	2
150	INVESTIGATIVE OPERATIONS TECH OFFICE	119 SF	1074.59 CF	B	100	2
151	INVESTIGATIVE OPERATIONS TECH OFFICE	117 SF	1056.38 CF	B	100	2
152	COMMAND CONFERENCE ROOM	506 SF	4550.27 CF	A-3	15	34
153	ADMINISTRATIVE/ OPERATIONS ROOM	693 SF	6234.78 CF	B	100	7
		13061 SF				196

PARSONS BRINCKERHOFF
COMPUTATION SHEET

Prepared by: JPB
Date: 1/30/2011

SUBJECT: Minimum Plumbing Fixture Requirements per IPC 2009

				WATER CLOSETS		LAVATORIES				
PROJECT BUILDING	CLASS	OCCUPANCY TYPE	NO. OF PEOPLE	MALE	FEMALE	MALE	FEMALE	SHOWERS	DRINKING FOUNTAINS	OTHER
RA 5-9	Business	B	11	1		1	1	-	-	1 service sink
RA 10-15	Business	B	19	1	1	1	1	-	1	1 service sink
Detachment 24	Business	B	30	1	1	1	1	-	1	1 service sink
Battalion HQ	Business	B	50 + 50 transient	2	2	2	2	-	1	1 service sink
Vehicle Processing	Storage	S-1	2	1		1		See Section 411 of IPC	-	1 service sink

NOTE: Separate facilites are not required for structures with a total occupant load of 15 or less. This applies to the RA 5-9. This also applies to drinking fountain requirements.

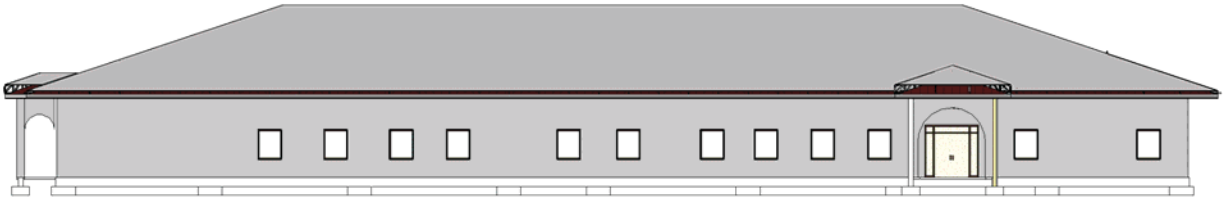
APPENDIX C

STRUCTURAL CALCULATIONS

CORRECTED FINAL SUBMISSION
12 SEPTEMBER 2012

CIC – Detachment 24

Ft. Bliss, Texas



Structural Calculations for
30% Design Development
07-Jun-2012

Prepared for ACOE By:

PARSONS BRINCKERHOFF

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Table of Contents

Code Search

CIC – Detachment 24; Ft. Bliss, Texas

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JOB TITLE	CIC Detachment 24 Building		
JOB NO.	173133C	**SHEET NO.**	
CALCULATED BY	T.Corwith	**DATE**	11/14/11
CHECKED BY	M. Yanik	**DATE**	1/26/12

Code Search

I. Code: International Building Code 2006

II. Occupancy:

Occupancy Group = B Business

III. Type of Construction:

Fire Rating:

Roof = 0.0 hr
Floor = 0.0 hr

IV. Live Loads:

Roof angle (θ) 4.00 / 12 18.4 deg

Roof 0 to 200 sf: 20 psf
200 to 600 sf: 24 - 0.02Area, but not less than 12 psf
over 600 sf: 12 psf

Floor	100 psf
Stairs & Exitways	100 psf
Balcony / Deck	100 psf
Mechanical	125 psf
Partitions	N/A

V. Wind Loads : ASCE 7 - 05

Importance Factor	1.00
Basic Wind speed	90 mph
Directionality (Kd)	0.85
Mean Roof Ht (h)	22.0 ft
Parapet ht above grd	0.0 ft
Minimum parapet ht	0.0 ft
Exposure Category	C
Enclosure Classif.	Enclosed Building
Internal pressure	+/-0.18
Type of roof	Hip
Building length (L)	190.0 ft
Least width (B)	76.0 ft
Kh case 1	0.920
Kh case 2	0.920

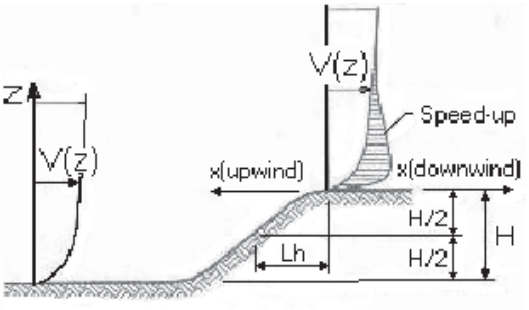
Topographic Factor (Kzt)

Topography	Flat	
Hill Height (H)	0.0 ft	H< 15ft;exp C
Half Hill Length (Lh)	0.0 ft	∴ Kzt=1.0
Actual H/Lh =	0.00	
Use H/Lh =	0.00	
Modified Lh =	0.0 ft	
From top of crest: x=	0.0 ft	
Bldg up/down wind?	downwind	

H/Lh= 0.00	K_1 =	0.000
x/Lh = 0.00	K_2 =	0.000
z/Lh = 0.00	K_3 =	1.000

At Mean Roof Ht:

$Kzt = (1+K_1K_2K_3)^2$ = 1.000



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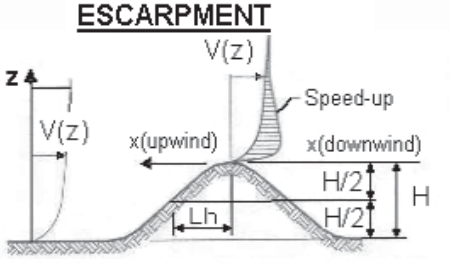

2D RIDGE or 3D AXISYMMETRICAL HILL

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V. Wind Loads - cont.:

Gust Effect Factor

Flexible structure if natural frequency < 1 Hz (T > 1 second).
However, rule of thumb if building is if h/B < 4 then rigid structure.

h =	22.0 ft
use this h :	22.0 ft
B =	76.0 ft
Calculated /z =	15.0 ft
Use this /z :	15.0 ft

h/B = 0.29 Therefore, probably rigid structure

G = 0.85 Using rigid structure default

Rigid Structure

/ε =	0.20
l =	500 ft
z_{min} =	15 ft
c =	0.20
g_Q, g_v =	3.4
L_z =	427.1 ft
Q =	0.89
I_z =	0.23
G =	0.87 use G = 0.85

Flexible or Dynamically Sensitive Structure

Natural Frequency (n_1) =	0.0 Hz			
Damping ratio (β) =	0			
/b =	0.65			
/α =	0.15			
Vz =	76.0			
N_1 =	0.00			
R_n =	0.000			
R_h =	28.282	η =	0.000	h = 22.0 ft
R_B =	28.282	η =	0.000	
R_L =	28.282	η =	0.000	
g_R =	0.000			
R =	0.000			
G =	0.000			

Enclosure Classification

Test for Enclosed Building: A building that does not qualify as open or partially enclosed.

Test for Open Building: All walls are at least 80% open.
Ao ≥ 0.8Ag

Test for Partially Enclosed Building:

	Input
Ao	0.0 sf
Ag	0.0 sf
Aoi	0.0 sf
Agi	0.0 sf

	Test
Ao ≥ 1.1Aoi	YES
Ao > 4' / 0.01Ag	NO
Aoi / Agi ≤ 0.20	NO

Building is NOT Partially Enclosed.

Conditions to qualify as Partially Enclosed Building. Must satisfy all of the following:
Ao >= 1.1Aoi
Ao > smaller of 4' or 0.01 Ag
Aoi / Agi <= 0.20
Where:
Ao = the total area of openings in a wall that receives positive external pressure.
Ag = the gross area of that wall in which Ao is identified.
Aoi = the sum of the areas of openings in the building envelope (walls and roof) not including Ao.
Agi = the sum of the gross surface areas of the building envelope (walls and roof) not including Ag.

Reduction Factor for large volume partially enclosed buildings (Ri):

If the partially enclosed building contains a single room that is unpartitioned , the internal pressure coefficient may be multiplied by the reduction factor Ri.

Total area of all wall & roof openings (Aog):	0 sf
Unpartitioned internal volume (Vi) :	0 cf
Ri =	1.00

Altitude adjustment to constant 0.00256 :

Altitude = 0 feet Average Air Density = 0.0765 lbm/ft^3
Constant = 0.00256

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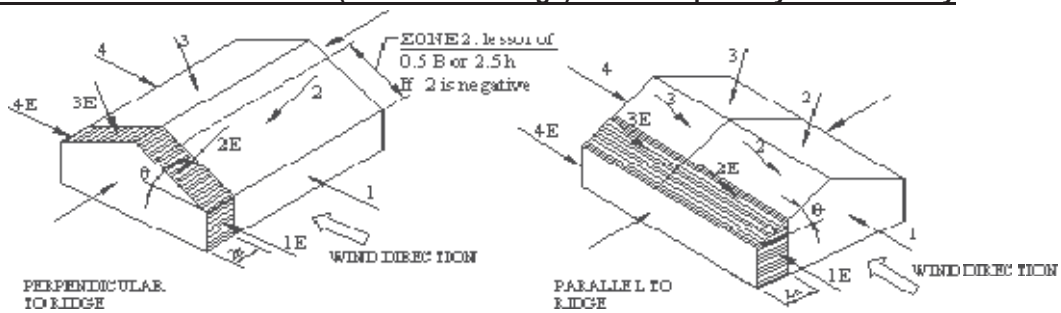
CHECKED BY M. Yanik **DATE** 1/26/12

V. Wind Loads - MWFRS h≤60' (Low-rise Buildings) Enclosed/partially enclosed only



Torsional loads are 25% of zones 1 - 4. See code for loading diagram

Transverse Direction

Kz = Kh (case 1) = 0.92
Base pressure (qh) = **16.2 psf**
GCpi = +/-0.18

Longitudinal Direction

Edge Strip (a) 7.6 ft
End Zone (2a) 15.2 ft
Zone 2 length = 38.0 ft

	Transverse Direction			Longitudinal Direction			
	Perpendicular θ = 18.4 deg			Parallel θ = 0.0 deg			
Surface	GCpf	w/-GCpi	w/+GCpi	GCpf	w/-GCpi	w/+GCpi	
1	0.52	0.70	0.34	0.40	0.58	0.22	
2	-0.69	-0.51	-0.87	-0.69	-0.51	-0.87	
3	-0.47	-0.29	-0.65	-0.37	-0.19	-0.55	
4	-0.42	-0.24	-0.60	-0.29	-0.11	-0.47	
5	-0.45	-0.27	-0.63	-0.45	-0.27	-0.63	
6	-0.45	-0.27	-0.63	-0.45	-0.27	-0.63	
1E	0.78	0.96	0.60	0.61	0.79	0.43	
2E	-1.07	-0.89	-1.25	-1.07	-0.89	-1.25	
3E	-0.67	-0.49	-0.85	-0.53	-0.35	-0.71	
4E	-0.62	-0.44	-0.80	-0.43	-0.25	-0.61	

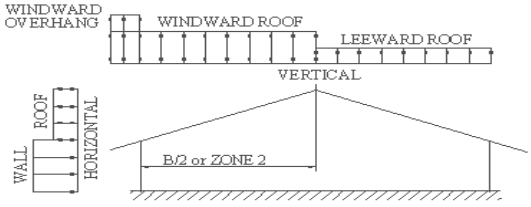
Wind Surface pressures (psf)

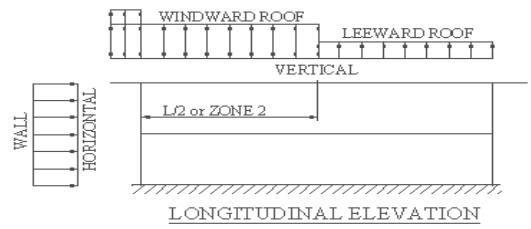
1	11.3	5.5	9.4	3.6	
2	-8.3	-14.1	-8.3	-14.1	
3	-4.7	-10.5	-3.1	-8.9	
4	-3.8	-9.7	-1.8	-7.6	
5	-4.4	-10.2	-4.4	-10.2	
6	-4.4	-10.2	-4.4	-10.2	
1E	15.6	9.7	12.8	7.0	
2E	-14.4	-20.3	-14.4	-20.3	
3E	-8.0	-13.8	-5.7	-11.5	
4E	-7.1	-12.9	-4.1	-9.9	

Windward roof overhangs: 11.0 psf (upward) add to windward roof pressure

Parapet

Windward parapet: 0.0 psf (GCpn = +1.5)
Leeward parapet: 0.0 psf (GCpn = -1.0)





Horizontal MWFRS Simple Diaphragm Pressures (psf)

Transverse direction (normal to L)

Interior Zone: Wall 15.1 psf
Roof -3.6 psf
End Zone: Wall 22.7 psf
Roof -6.4 psf

Longitudinal direction (parallel to L)

Interior Zone: Wall 11.2 psf
End Zone: Wall 16.9 psf

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JOB TITLE CIC Detachment 24 Building

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CHECKED BY M. Yanik **DATE** 1/26/12

V. Wind Loads - Components & Cladding: Buildings h≤60' & Alternate design 60'<h<90'

Kz = Kh (case 1) = 0.92 GCpi = +/-0.18 NOTE: If tributary area is greater than
Base pressure (qh) = **16.2 psf** a = 7.6 ft 700sf, MWFRS pressure may be used.
Roof Angle = 18.4 deg

Type of roof = Hip

Roof	GCp +/- GCpi			Surface Pressure (psf)			**User input**	
Area	10 sf	50 sf	100 sf	10 sf	50 sf	100 sf	20 sf	250 sf
Negative Zone 1	-1.08	-1.01	-0.98	-17.5 psf	-16.4 psf	-15.9 psf	-17.0 psf	-15.9 psf
Negative Zone 2	-1.88	-1.53	-1.38	-30.5 psf	-24.8 psf	-22.4 psf	-28.0 psf	-22.4 psf
Negative Zone 3	-1.88	-1.53	-1.38	-30.5 psf	-24.8 psf	-22.4 psf	-28.0 psf	-22.4 psf
Positive All Zones	0.68	0.54	0.48	11.0 psf	10.0 psf	10.0 psf	10.1 psf	10.0 psf
Overhang Zone 2	-2.20	-2.20	-2.20	-35.7 psf	-35.7 psf	-35.7 psf	-35.7 psf	-35.7 psf
Overhang Zone 3	-2.20	-2.20	-2.20	-35.7 psf	-35.7 psf	-35.7 psf	-35.7 psf	-35.7 psf

Negative zone 3 = zone 2, since hip roof with angle <= 25 degrees

Walls	GCp +/- GCpi			Surface Pressure (psf)			**User input**	
Area	10 sf	100 sf	500 sf	10 sf	100 sf	500 sf	50 sf	200 sf
Negative Zone 4	-1.28	-1.10	-0.98	-20.8 psf	-17.9 psf	-15.9 psf	-18.8 psf	-17.0 psf
Negative Zone 5	-1.58	-1.23	-0.98	-25.6 psf	-19.9 psf	-15.9 psf	-21.6 psf	-18.2 psf
Positive Zone 4 & 5	1.18	1.00	0.88	19.1 psf	16.3 psf	14.3 psf	17.1 psf	15.4 psf

Parapet

qp = 0.0 psf

CASE A = pressure towards building
CASE B = pressure away from building

	Surface Pressure (psf)			**User input**
Solid Parapet Pressure	10 sf	100 sf	500 sf	40 sf
CASE A : Interior zone :	0.0 psf	0.0 psf	0.0 psf	0.0 psf
Corner zone :	0.0 psf	0.0 psf	0.0 psf	0.0 psf
CASE B : Interior zone :	0.0 psf	0.0 psf	0.0 psf	0.0 psf
Corner zone :	0.0 psf	0.0 psf	0.0 psf	0.0 psf

Rooftop Structures & Equipment

Dist from mean roof height to centroid of Af = 0.0 ft
Height of equipment (he) = 0.0 ft
Gust Effect Factor (G) = 0.85
Base pressure (qz) = **19.1 Kd** psf

Cross-Section Square
Directionality (Kd) 0.90

Width (D) 10.0 ft
h/D = 0.00
Type of Surface N/A

Square (wind along diagonal)

Cf = 1.00
Af = 10.0 sf
Adjustment Factor (Adj) = 1.90
F = qz G Cf Af Adj= **27.7 Af**
F = 277 lbs

Square (wind normal to face)

C_f = 1.30
A_f = 10.0 sf
Adjustment Factor (Adj) = 1.900
$F = q_z G C_f A_f$ Adj= **36.1 Af**
F = 361 lbs

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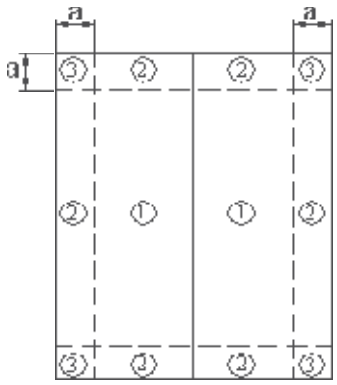
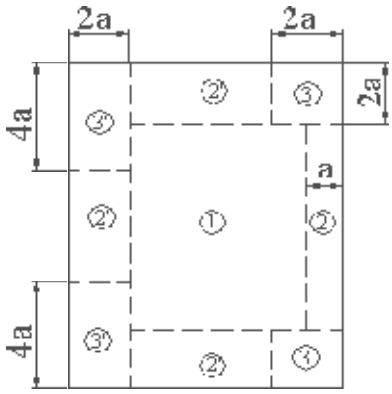
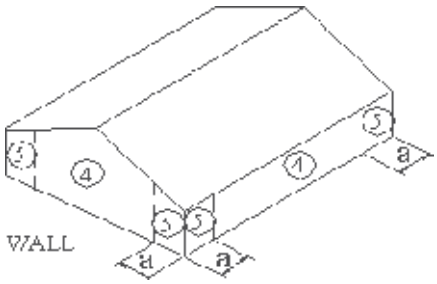
Location of Wind Pressure Zones

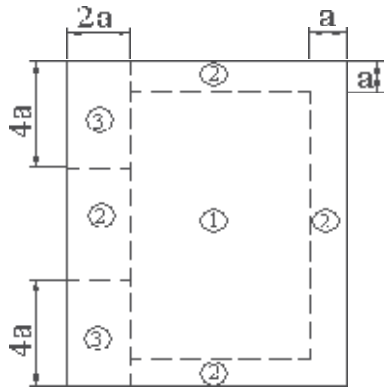


Gable θ ≤ 7 degrees and
Monoslope ≤ 3 degrees

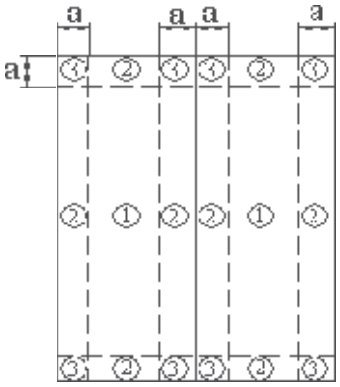


Monoslope roofs
3° < θ ≤ 10°

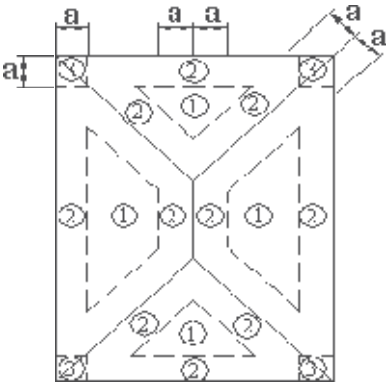




Monoslope roofs 10° < θ ≤ 30°



Gable 7 < θ ≤ 45 degrees



Hip 7 < θ < 27 degrees

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VII. Snow Loads :

Roof slope	=	18.4 deg
Horiz. eave to ridge dist (W)	=	35.0 ft
Roof length parallel to ridge (L)	=	190.0 ft

Type of Roof			Hip and gable w/ trussed systems
Ground Snow Load	Pg	=	5.0 psf
Importance Category		=	II
Importance Factor	I	=	1.0
Thermal Factor	Ct	=	1.00
Exposure Factor	Ce	=	0.9
Pf = 0.7*Ce*Ct*I*Pg		=	3.2 psf
Pf min		=	0.0 psf
Flat Roof Snow Load	Pf	=	3.2 psf
Rain on Snow Surcharge Angle		=	0.70 deg
Code Maximum Rain Surcharge			5.0 psf
Rain on Snow Surcharge		=	0.0 psf
Unobstructed Slippery Surface (per Section 7.4)		=	no
Sloped-roof Factor	Cs	=	1.00

Exposure Factor, Ce			
	Exposure of roof		
Terrain	Fully	Partially	Sheltered
A	n/a	1.1	1.3
B	0.9	1.0	1.2
C	0.9	1.0	1.1
D	0.8	0.9	1.0
Above treeline	0.7	0.8	n/a
Alaska-no trees	0.7	0.8	n/a

Design Roof Snow Load (Ps) = **3.2 psf** ("balanced" snow load)

Building Official Minimum = 3.2 psf

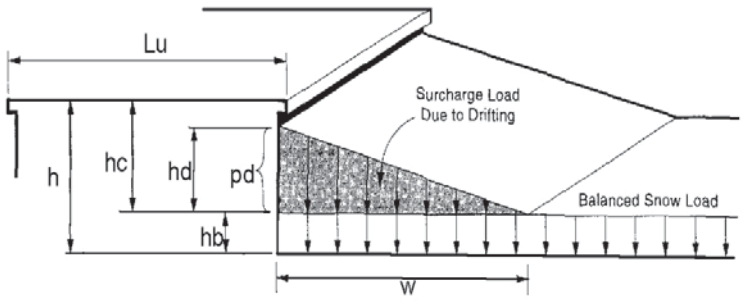
NOTE: Alternate spans of continuous beams and other areas shall be loaded with half the design roof snow load so as to produce the greatest possible effect - see code.

Unbalanced Snow Loads - for Hip & Gable roofs only

Larger of 2.38 degrees or 70/W + 0.5 =	2.5 deg	**Unbalanced snow loads must be applied**
Windward snow load =	0.9 psf	= 0.3Ps
Leeward snow load from ridge to 5.86' =	13.9 psf	= hdγ / √S + Ps
Leeward snow load from 5.86' to the eave =	3.2 psf	= Ps

Leeward Snow Drifts - from adjacent higher roof

Upper roof length	lu	=	0.0 ft
Projection height	h	=	0.0 ft
Building separation	s	=	0.0 ft
Adjacent structure factor			1.00
Snow density	γ	=	14.7 pcf
Balanced snow height	hb	=	0.22 ft
	hc	=	-0.22 ft
hc/hb <0.2 = -1.0	**Therefore, no drift**		
Drift height	hd	=	0.00 ft
Drift width	w	=	-17.66 ft
Surcharge load:	pd = g*hd	=	**0.0 psf**



Windward Snow Drifts - Against walls, parapets, etc more than 15' long

Building roof length	lu	=	0.0 ft
Projection height	h	=	0.0 ft
Snow density	γ	=	14.7 pcf
Balanced snow height	hb	=	0.22 ft
	hc	=	-0.22 ft
hc/hb <0.2 = -1.0	**Therefore, no drift**		
Drift height	hd	=	0.00 ft
Drift width	w	=	-9.93 ft
Surcharge load:	pd = g*hd	=	**0.0 psf**

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VI. Seismic Loads: ASCE 7- 05

Occupancy Category: II
Importance Factor (I) : 1.00

Site Class : D

Ss (0.2 sec) = 31.00 %g
S1 (1.0 sec) = 10.00 %g

Fa =	1.552		Sms =	0.481	S_{DS} =	0.321	Design Category =	B
Fv =	2.400		Sm1 =	0.240	S_{D1} =	0.160	Design Category =	C

Seismic Design Category = **C**

Number of Stories: 1
Structure Type: Not applicable
Horizontal Struct Irregularities: No plan Irregularity
Vertical Structural Irregularities: No vertical Irregularity

Flexible Diaphragms: Yes
Building System: **Structural steel systems not specifically detailed for seismic resistance**
Seismic resisting system: **Structural steel systems not specifically detailed for seismic resistance**
System Building Height Limit: **Height not limited**
Actual Building Height (hn) = 22.0 ft

DESIGN COEFFICIENTS AND FACTORS

Response Modification Factor (R) = 3
System Over-Strength Factor (Ωo) = 2.5
Deflection Amplification Factor (Cd) = 3
S_{DS} = 0.321
S_{D1} = 0.160

ρ = redundancy coefficient

Seismic Load Effect (E) = ρQ_E +/- $0.2S_{DS}$ D = ρQ_E +/- 0.064D — Q_E = horizontal seismic force
Special Seismic Load Effect (E) = $\Omega o Q_E$ +/- $0.2S_{DS}$ D = 2.5 Q_E +/- 0.064D — D = dead load

PERMITTED ANALYTICAL PROCEDURES

Index Force Analysis (Seismic Category A only) Method Not Permitted

Simplified Analysis Use Equivalent Lateral Force Analysis

Equivalent Lateral-Force Analysis - Permitted

Building period coef. (C_T) =	0.020			Cu = 1.58
Approx fundamental period (Ta) =	$C_T h_n^x$ =	0.203 sec	x= 0.75	Tmax = CuTa = 0.321
User calculated fundamental period (T) =		0 sec		Use T = 0.203
Long Period Transition Period (TL) =	ASCE7 map =	6		
Seismic response coef. (Cs) =	SdsI/R =	0.107		
need not exceed Cs =	Sd1 I /RT =	0.263		
but not less than Cs =	0.044Sds =	0.014		
USE Cs =		0.107		

Design Base Shear V = 0.107W

Model & Seismic Response Analysis - Permitted (see code for procedure)

ALLOWABLE STORY DRIFT

Structure Type: All other structures

Allowable story drift = 0.020hsx where hsx is the story height below level x

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JOB TITLE	CIC Detachment 24 Building		
JOB NO.	173133C	**SHEET NO.**	
CALCULATED BY	T.Corwith	**DATE**	11/14/11
CHECKED BY	M. Yanik	**DATE**	1/26/12

VI. Seismic Loads - cont. :

Seismic Design Category (SDC)= C

CONNECTIONS

Force to connect smaller portions of structure to remainder of structure

$Fp = 0.133 S_{DS} w_p =$ 0.04 w_p
or $Fp = 0.5 w_p =$ 0.05 w_p Use Fp = 0.05 w_p w_p = weight of smaller portion

Beam, girder or truss connection for resisting horizontal force parallel to member

F_P = no less than 0.05 times dead plus live load vertical reaction

Anchorage of Concrete or Masonry Walls to elements providing lateral support

$Fp = 0.8 IeSdsWw =$ 0.257 w_w
or $Fp = 0.1 w_w =$ 0.10 w_w Use Fp = 0.26 w_w but not less than 280.0 plf
Connection force given is for flexible diaphragms (use architectural components for ridgid diaphrams)

MEMBER DESIGN

Bearing Walls and Shear Walls (out of plane force)

$Fp = 0.40 IeS_{DS} w_w =$ 0.128 w_w
or $Fp = 0.1 w_w =$ 0.10 w_w Use Fp = 0.13 w_w

Diaphragms

$Fp = 0.2 IeSdsWp + Vpx =$ 0.064 Wp + Vpx

ARCHITECTURAL COMPONENTS SEISMIC COEFFICIENTS

Architectural Component : 5. Veneer
a. Limited deformability elements and attachments

Importance Factor (Ip) : 1.0

Component Amplification Factor (a_p) = 1 h= 22.0 feet
Comp Response Modification Factor (R_p) = 2.5 z= 20.0 feet z/h = 0.91

$Fp = 0.4 a_p SdsIpWp(1+2z/h)/Rp =$ 0.145 Wp
not greater than $Fp = 1.6 SdsIpWp =$ 0.513 Wp
but not less than $Fp = 0.3 SdsIpWp =$ 0.096 Wp use Fp = 0.145 Wp

MECH AND ELEC COMPONENTS SEISMIC COEFFICIENTS

Seismic Design Category C & Ip=1.0, therefore Not required

Mech or Electrical Component : Other mechanical or electrical components.

Importance Factor (Ip) : 1.0

Component Amplification Factor (a_p) = 1 h= 22.0 feet
Comp Response Modification Factor (R_p) = 1.5 z= 20.0 feet z/h = 0.91

$Fp = 0.4 a_p SdsIpWp(1+2z/h)/Rp =$ 0.241 Wp
not greater than $Fp = 1.6 SdsIpWp =$ 0.513 Wp
but not less than $Fp = 0.3 SdsIpWp =$ 0.096 Wp use Fp = 0.241 Wp

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Roof Design Loads

Items	Description	Multiple	psf (max)	psf (min)
Roofing	Metal, copper, or tin sheets		1.5	1.0
Decking	Metal Roof deck, 1.5, 20 ga.		2.5	2.0
Framing	Steel roof beams & girders		5.0	3.0
Insulation	Rigid insulation, per 1"	x 6.0"	9.0	4.5
Ceiling	Suspended acoustical tile	x 1 ply(s)	1.8	1.0
Mech & Elec	Mech. & Elec.		2.0	8.0
Sprinklers	Sprinklers		2.0	0.0
Other	None		0.0	0.0
		Actual Dead Load	◉ 23.8	◉ 19.5
		Use this DL instead	○ 20.0	○ 9.0
		Live Load	20.0	0.0
		Snow Load	3.2	0.0
		Wind (zone 2 - 100sf)	10.0	-22.4
ASD Loading		Dead + Live Load	43.8	-
		Dead + 0.75(Wind + Live) Load	46.3	-
		0.6*Dead + Wind Load	-	-10.7
LRFD Loading		1.2D + 1.6 Lr + 0.8W	68.6	-
		1.2D + 1.6W + 0.5Lr	54.6	-
		0.9D + 1.6W	-	-18.3

Roof Live Load Reduction Roof angle 4.00 / 12 18.4 deg

0 to 200 sf: 20.0 psf
200 to 600 sf: 24 - 0.02Area, but not less than 12 psf
over 600 sf: 12.0 psf

	300 sf	18.00
	400 sf	16.00
	500 sf	14.00
User Input:	450 psf	15.00

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JOB TITLE CIC Detachment 24 Building

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CALCULATED BY T.Corwith **DATE** 11/14/11
CHECKED BY M. Yanik **DATE** 1/26/12

CODE SUMMARY

Code: International Building Code 2006

Live Loads:

Roof	0 to 200 sf:	20 psf
	200 to 600 sf:	24 - 0.02Area, but not less than 12 psf
	over 600 sf:	12 psf
Floor		100 psf
Stairs & Exitways		100 psf
Balcony / Deck		100 psf
Mechanical		125 psf
Partitions		N/A

Dead Loads:

Floor	0.0 psf
Roof	23.8 psf

Roof Snow Loads:

Design Roof Snow load		=	3.2 psf
Flat Roof Snow Load	Pf	=	3.2 psf
Ground Snow Load	Pg	=	5.0 psf
Rain on Snow Surcharge		=	0.0 psf
Snow Exposure Factor	Ce	=	0.90
Importance Factor	I	=	1.00
Thermal Factor	Ct	=	1.00
Sloped-roof Factor	Cs	=	1.00

Wind Design Data:

Basic Wind speed	90 mph
Mean Roof Ht (h)	22.0 ft
Building Category	II
Importance Factor	1.00
Exposure Category	C
Enclosure Classif.	Enclosed Building
Internal pressure Coef.	+/-0.18
Directionality (Kd)	0.85

Earthquake Design Data:

Occupancy Category:		=	II	
Importance Factor	I	=	1.00	
Mapped spectral response	Ss	=	31.00	%g
accelerations	S1	=	10.00	%g
Site Class		=	D	
Spectral Response Coef.	Sds	=	0.321	
	Sd1	=	0.160	
Seismic Design Category		=	C	
Basic Structural System		=	Structural steel systems not specifically detailed for seismic resistance	
Seismic Resisting System		=	Structural steel systems not specifically detailed for seismic resistance	
Design Base Shear	V	=	0.107W	
Seismic Response Coef.	Cs	=	0.107	
Response Modification Factor	R	=	3	
Analysis Procedure		=	Equivalent Lateral-Force Analysis	

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CODE SUMMARY- continued

Component and cladding wind pressures

h>60 feet

h<= 60' - can't use procedure.

Roof	Surface Pressure (psf)		
Area	10 sf	50 sf	100 sf
Negative Zone 1	-17.5	-16.4	-15.9
Negative Zone 2	-30.5	-24.8	-22.4
Negative Zone 3	-30.5	-24.8	-22.4
Positive All Zones	11.0	10.0	10.0
Overhang Zone 2	-35.7	-35.7	-35.7
Overhang Zone 3	-35.7	-35.7	-35.7

Wall	Surface Pressure (psf)		
Area	20 sf	100 sf	500 sf
Negative Zone 4	-17.5	-15.9	-14.3
Negative Zone 5	-32.1	-25.6	-19.1
Positive Zone 4 & 5			
0 to 15'	16.4	14.1	11.9
20 ft	17.2	14.8	12.5
22 ft	17.5	15.1	12.7
28 ft	18.3	15.7	13.2

Parapet	Solid Parapet Pressure (psf)		
Area	10 sf	100 sf	500 sf
CASE A: Interior zone	0.0	0.0	0.0
Corner zone	0.0	0.0	0.0
CASE B: Interior zone	0.0	0.0	0.0
Corner zone	0.0	0.0	0.0

TABLE E-1

State	Base / City	Ground Snow (psf)	Wind Speed (mph)	Frost Penetration (inches)	Ground Snow (kPa)	Wind Speed (km/h)	Frost Penetration (mm)
Tennessee	Arnold AFB	**10**	**90**		**0.48**	**145**	
	NSWC LCC / Memphis	**10**	**90**	**0**	**0.48**	**145**	**0**
	NSA Mid-South / Millington	**10**	**90**		**0.48**	**145**	
	Nashville	**10**	**90**	**22**	**0.48**	**145**	**559**
Texas	NAS JRB, Carswell / Fort Worth	**5**	**90**	**7**	**0.24**	**145**	**178**
	NAS Corpus Christi	**0**	**130**	**0**	**0.00**	**209**	**0**
	Dallas / Irving	**5**	**90**	**7**	**0.24**	**145**	**178**
	Dyess AFB	**5**	**90**	**7**	**0.24**	**145**	**178**
	Ellington ANG / Houston	**0**	**115**	**0**	**0.00**	**185**	**0**
	Fort Bliss / El Paso	**5**	**90**	**0**	**0.24**	**145**	**0**
	Fort Hood / Killeen	**5**	**90**	**6**	**0.24**	**145**	**152**
	Goodfellow AFB	**5**	**90**	**5**	**0.24**	**145**	**127**
	NS Ingleside	**0**	**130**	**0**	**0.00**	**209**	**0**
	NAS Kingsville	**0**	**115**	**0**	**0.00**	**185**	**0**
	Laughlin AFB	**0**	**90**	**0**	**0.00**	**145**	**0**
	Red River Army Depot / Texarkana	**5**	**90**	**8**	**0.24**	**145**	**203**
	San Antonio Region Brooks AFB Fort Sam Houston Kelly AFB Lackland AFB Randolph AFB	**5**	**90**	**0**	**0.24**	**145**	**0**
	Sheppard AFB	**5**	**90**	**11**	**0.24**	**145**	**279**
Utah	Dugway Proving Ground	**10**	**90**	**54**	**0.48**	**145**	**1372**
	Hill AFB	**40**	**90**	**73**	**1.92**	**145**	**1854**
	Salt Lake City	**15**	**90**	**59**	**0.72**	**145**	**1499**
	Tooele Army Depot	**25**	**90**	**52**	**1.20**	**145**	**1321**
Virginia	Dahlgren	**25**	**90**		**1.20**	**145**	
	Dam Neck / Virginia Beach Ocean front	**10**	**115**	**5**	**0.48**	**185**	**127**
	Fort A. P. Hill	**25**	**90**		**1.20**	**145**	
	Fort Belvoir	**25**	**90**	**26**	**1.20**	**145**	**660**
	Fort Eustis	**15**	**97**	**9**	**0.72**	**156**	**229**

TABLE E-2

State	Base / City	Seismic Data (Site Class B) S_S (%g)	S_1 (%g)	10/50 S_S (%g)	10/50 S_1 (%g)
South Carolina	**Columbia Region:**				
	McEntire	**56**	**16**	**22**	**6**
	Fort Jackson	**56**	**15**	**20**	**6**
	Shaw AFB	**67**	**18**	**22**	**6**
	MCRD Parris Island	**62**	**17**	**18**	**5**
South Dakota	Ellsworth AFB	**15**	**4**	**5**	**2**
Tennessee	Arnold AFB	**30**	**11**	**12**	**5**
	NSWC LCC / Memphis	**141**	**38**	**28**	**7**
	NSA Mid-South / Millington	**150**	**43**	**32**	**7**
	Nashville	**33**	**13**	**12**	**5**
Texas	NAS JRB, Carswell / Fort Worth	**11**	**5**	**4**	**2**
	NAS Corpus Christi	**8**	**2**	**2**	**1**
	Dallas / Irving	**12**	**5**	**4**	**2**
	Dyess AFB	**9**	**4**	**3**	**1**
	Ellington ANG / Houston	**9**	**4**	**3**	**1**
	Fort Bliss / El Paso	**31**	**10**	**14**	**4**
	Fort Hood / Killeen	**8**	**4**	**3**	**1**
	Goodfellow AFB	**8**	**3**	**3**	**1**
	NS Ingleside	**8**	**2**	**2**	**1**
	NAS Kingsville	**8**	**2**	**2**	**1**
	Laughlin AFB	**6**	**2**	**2**	**1**
	Red River Army Depot / Texarkana	**17**	**8**	**6**	**2**
	San Antonio Region				
	Brooks AFB	**12**	**3**	**3**	**1**
	Fort Sam Houston	**11**	**3**	**3**	**1**
	Kelly AFB	**11**	**3**	**3**	**1**
	Lackland AFB	**11**	**3**	**3**	**1**
	Randolph AFB	**11**	**3**	**3**	**1**
	Sheppard AFB	**17**	**6**	**5**	**2**
Utah	Dugway Proving Ground	**35**	**14**	**17**	**6**
	Hill AFB	**114**	**48**	**50**	**17**
	Salt Lake City	**153**	**60**	**61**	**20**
	Tooele Army Depot	**73**	**27**	**35**	**12**
Virginia	Dahlgren	**16**	**5**	**6**	**2**
	Dam Neck / Virginia Beach Ocean front	**11**	**5**	**4**	**2**
	Fort A. P. Hill	**18**	**5**	**7**	**2**

Building Frame Analysis

CIC – Detachment 24; Ft. Bliss, Texas

Loads:

The loads given below are a summary of the loads calculated within the *code search spreadsheet* . Designed in accordance with IBC 2006/ ASCE 7-05

Live Loads

20.0 psf Roof Live Load

Dead Loads

23.8 psf All Dead Load Supported by the Steel frame at the Eave Elevation

Seismic Loads

Equivalent Lateral Force Method is Permitted

C SDC

0.020hsx Allowable drift

0.1069W Design Base shear

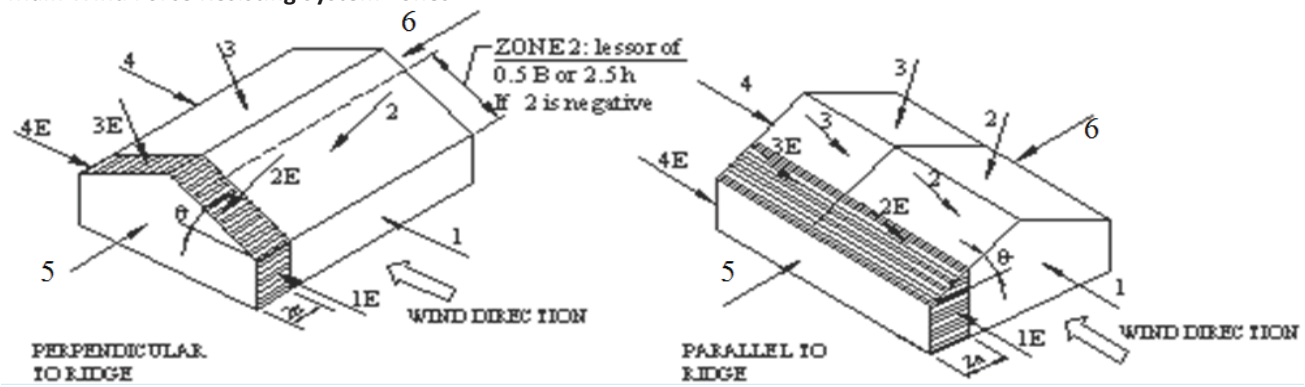
Wind Loads

Main Wind Force Resisting System				
	Wind Surface Pressure			
Zone	Transverse Direction		Longitudinal Direction	
1	11.30 psf	5.46 psf	9.41 psf	3.57 psf
2	-8.27 psf	-14.11 psf	-8.27 psf	-14.11 psf
3	-4.68 psf	-10.52 psf	-3.08 psf	-8.92 psf
4	-3.82 psf	-9.66 psf	-1.78 psf	-7.62 psf
5	-4.38 psf	-10.22 psf	-4.38 psf	-10.22 psf
6	-4.38 psf	-10.22 psf	-4.38 psf	-10.22 psf
1E	15.57 psf	9.73 psf	12.81 psf	6.97 psf
2E	-14.43 psf	-20.27 psf	-14.43 psf	-20.27 psf
3E	-8.00 psf	-13.84 psf	-5.68 psf	-11.52 psf
4E	-7.11 psf	-12.94 psf	-4.05 psf	-9.89 psf

7.60 ft Dimension a

Zone diagrams follow

Main Wind Force Resisting System Zones



Strength Design Load Combinations for member size design

16-1	1.4(D)
16-2	1.2(D) + 1.6(L) + 0.5(Lr or S)
16-3	1.2(D) + 1.6(Lr or S) + 0.5(L or 0.8W)
16-4	1.2(D) + 1.6(W) + L + 0.5(Lr or S)
16-5	1.2(D) + 1.0(E) + L + 0.2(S)
16-6	0.9(D) + 1.6(W)
16-7	0.9(D) + 1.0(E)

Roof live load controls over snow load. The "S" Load will be omitted

Allowable Stress Design load combinations are used for footing size check and building deflection checks.

16-10	D + Lr
16-12a	D + (W)
16-12b	D + (0.7E)
16-13a	D + 0.75(0.7E) + 0.75(Lr)
16-13b	D + 0.75(W) + 0.75(Lr)
16-14	0.6(D) + W
16-15	0.6(D) + 0.7(E)

The above load combinations are plugged into the analysis model and used to check the design of the structure

PARSONS BRINCKERHOFF

Subject:	CIC Detachment 24 - Ft. Bliss TX	*Page:* of	173133C
	Load Calc. for RISA Input	*Made by:*	Corwith, Travis
		Date:	11-Nov-2011
		Checked by:	
		Date:	

Roof Gravity Load:

Auto	Structural Dead Load (Self Weight)
23.8 psf	SI DL
20.0 psf	RLL

**Note: The SI-DL includes an allowance for the truss and steel deck weight which are not included in the self weight for the RISA model*

Seismic Load:

14.00 ft	Eave Ht
7.00 ft	Wall half Height
10.0 psf	Wall Weight (CFS studs, wall board, stucco, and paint)
70.0 plf	Load around perimeter

255.9 plf	***DL (exterior Beam - Lines A, D)***
612.9 plf	***DL (Interior Beam - Lines B, C)***
215.0 plf	***LL (exterior Beam - Lines A, D)***
515.0 plf	***LL (Interior Beam - Lines B, C)***

**Note: To account for the loads along the transverse edge due to the hip roof configuration, the "exterior" beam load will be applied. This should provide reasonable results.*

Building Dimensions:

190.00 ft	Length
76.00 ft	Width
14,440 ft^2	Area
532.00 ft	Perimeter
14.00 ft	Eave Elevation
22.00 ft	Average Roof Elevation

Total Seismic Loading:

66.00 k	Superstructure Self Weight (From RISA)
343.67 k	SI DL Weight (used to calculate seismic load)
37.24 k	Wall Weight
446.91 k	Sum of Seismic Dead Load
0.1069W	Seismic Base Shear Factor
47.78 k	***Seismic Load (applied at eave elevation as approximate center of mass of the roof level)***

Seismic loads are applied to the model at the approximate center of mass . RISA3D cannot model a flexible diaphragm (without the RISAFloor Module), but for this building, a rigid diaphragm will provide similar results. Therefore, the load is applied to the diaphragm as close to the center of rigidity as possible to prevent torsional effects (To accomplish this a joint is added to the diaphragm at the geometric centroid)

PARSONS BRINCKERHOFF

Subject:	CIC Detachment 24 - Ft. Bliss TX Load Calc. for RISA Input	*Page:*	of
		Made by:	Corwith, Travis
		Date:	11-Nov-2011
		Checked by:	
		Date:	

173133C

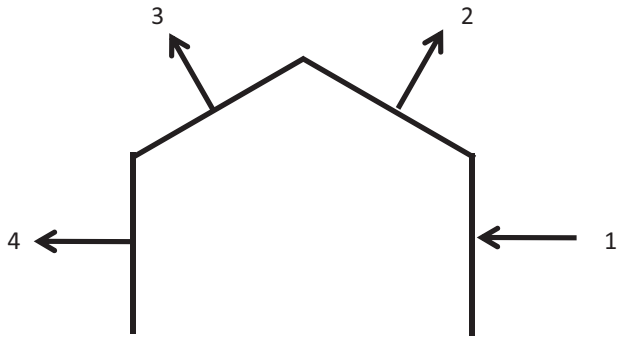
Wind Load

1 The horizontal component of the wind load on the sloped roof nearly cancels out at the two sloped sides and is therefore neglected from this calculation for 30% level design

2 The vertical component of the wind load is included for the member check

Transverse Wind Loading (Zone 1 + 4; Longitudinal Case)

76.00 ft	Width
7.00 ft	Height (Wall only)
7.60 ft	Edge Length
15.20 ft	Edge Width
60.80 ft	Non-Edge Width
16.9 psf	Edge Load (Sum of each face)
11.2 psf	Non-Edge Load (Sum of each face)
106 ft^2	Edge Area
426 ft^2	Non-Edge Area
6.56 k	***Total Transverse Wind Load***
76.00 ft	*Building Transverse Width*
0.09 klf	***Uniform Load applied at the eave normal to Grid 1 or 9***



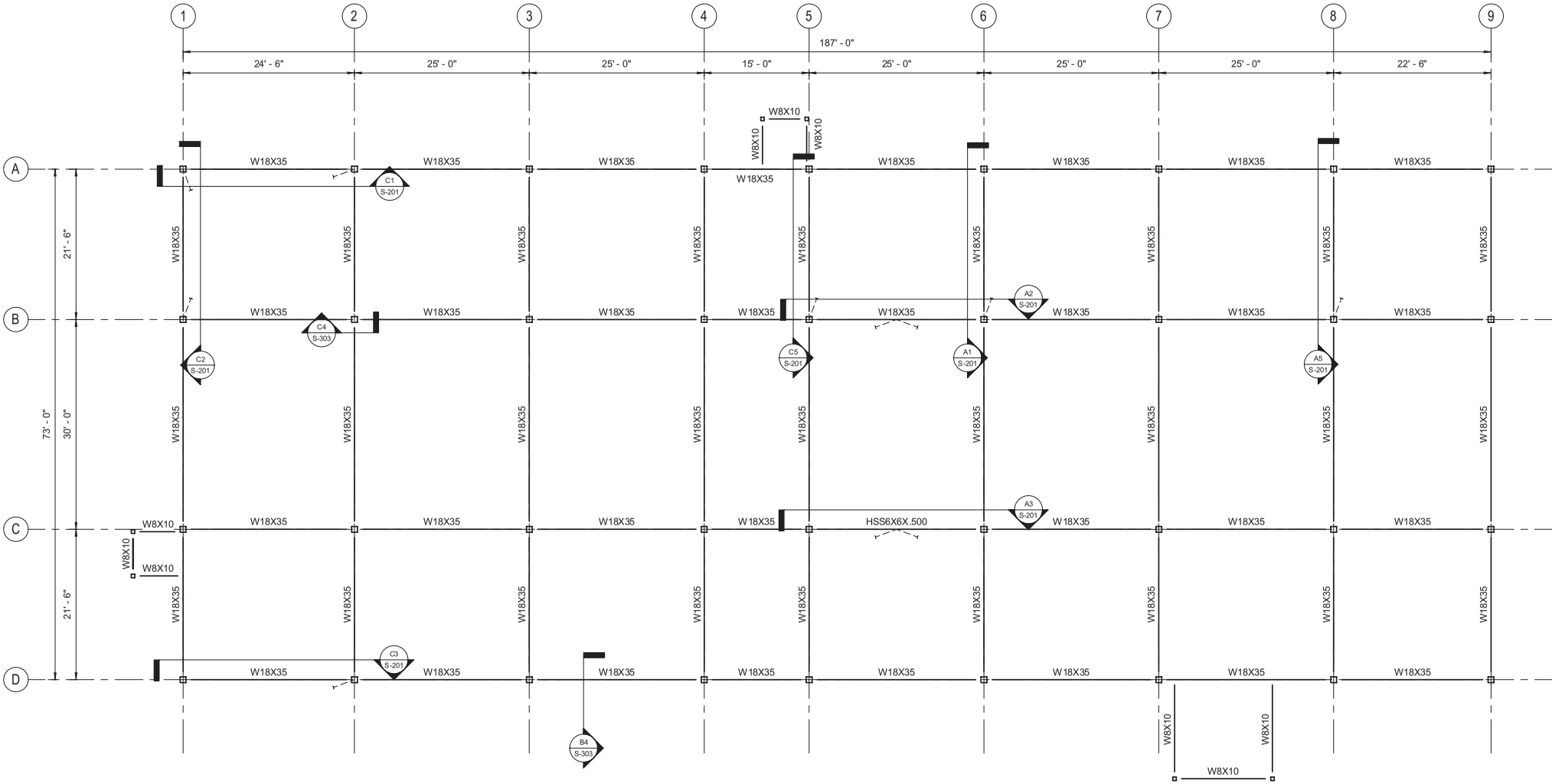
Longitudinal Wind Loading (Zone 1 + 4; Transverse Case)

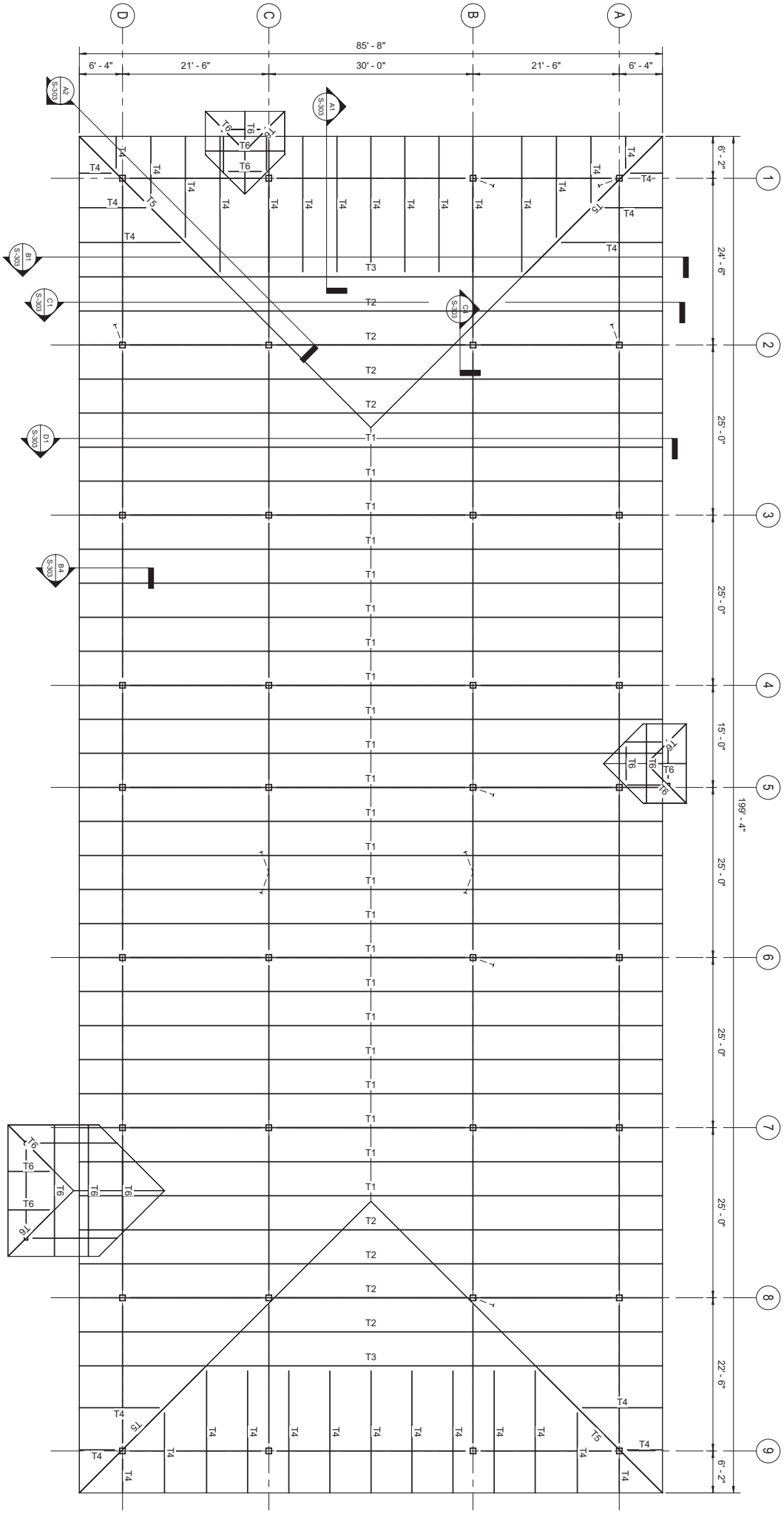
190.00 ft	Width
7.00 ft	Height (Wall only)
7.60 ft	Edge Length
15.20 ft	Edge Width
174.80 ft	Non-Edge Width
22.7 psf	Edge Load (Sum of each face)
15.1 psf	Non-Edge Load (Sum of each face)
106 ft^2	Edge Area
1,224 ft^2	Non-Edge Area
20.90 k	***Total Longitudinal Wind Load***
190.00 ft	*Building Longitudinal Width*
0.11 klf	***Uniform Load applied at the eave normal to Grid A or D***

Uplift

6.00 ft	Roof Overhang
76.00 ft	Building Width
190.00 ft	Building Length
4:12	Roof Slope
1.05	Roof Area Modification Factor
18,738 ft^2	Roof Area (Modified)
14.7 psf	***Uplift Load (Vertical Component of the average of Zone 2 and 3)***
275.16 k	***Total Uplift Load***
0.25 klf	***Uplift (exterior Beam - Lines A, D)***
0.38 klf	***Uplift (Interior Beam - Lines B, C)***

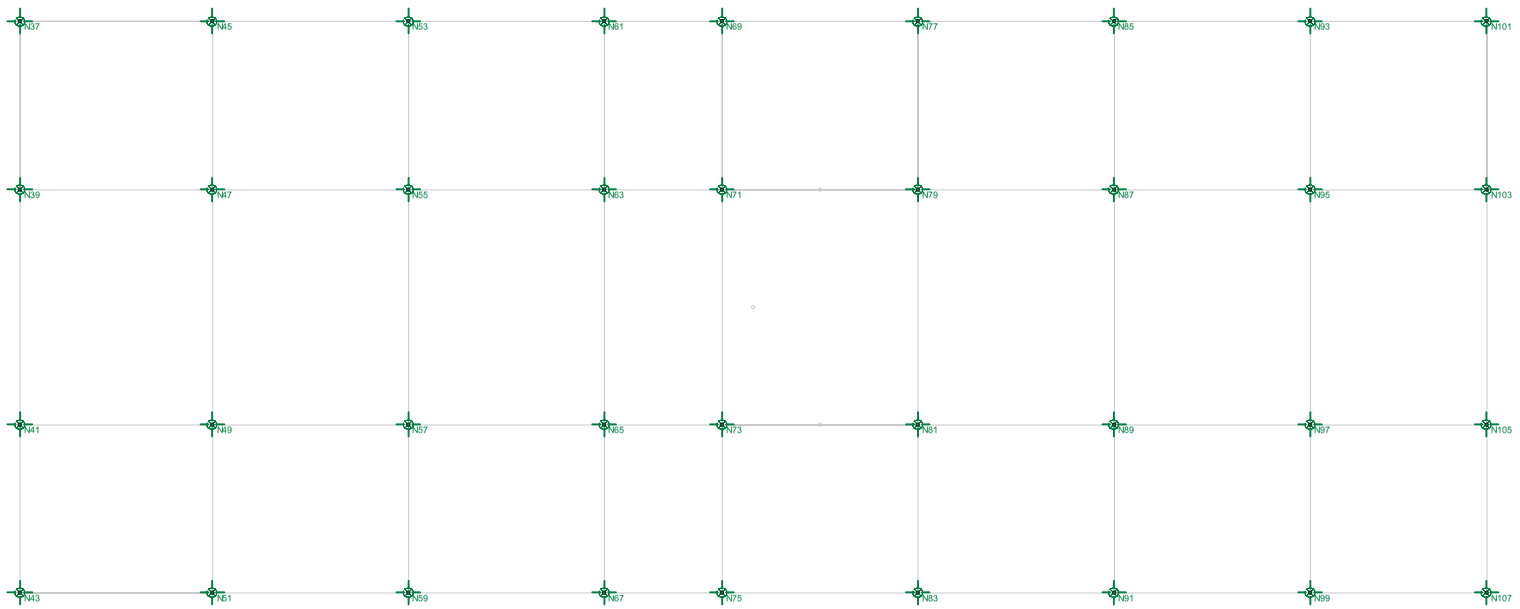
**Note: The uplift load for Transverse and Longitudinal wind are approximately equal, so the maximum average will be applied to both load cases*


1
2
3
4
5
6
7
8
9
187' - 0"
24' - 6"
25' - 0"
25' - 0"
15' - 0"
25' - 0"
25' - 0"
25' - 0"
22' - 6"
A
B
C
D
73' - 0"
21' - 6"
30' - 0"
21' - 6"
W18X35
W8X10
HSS6X6X.500
C1
S-201
C2
S-201
C3
S-201
C4
S-303
C5
S-201
A1
S-201
A2
S-201
A3
S-201
A5
S-201
B4
S-303


D
C
B
A
85' - 8"
6' - 4"
21' - 6"
30' - 0"
21' - 6"
6' - 4"
A2 S-303
A1 S-303
B1 S-303
C1 S-303
C1 S-303
D1 S-303
B4 S-303
T1
T2
T3
T4
T5
T6
1
2
3
4
5
6
7
8
9
6' - 2"
24' - 6"
25' - 0"
25' - 0"
15' - 0"
199' - 4"
25' - 0"
25' - 0"
25' - 0"
22' - 6"
6' - 2"

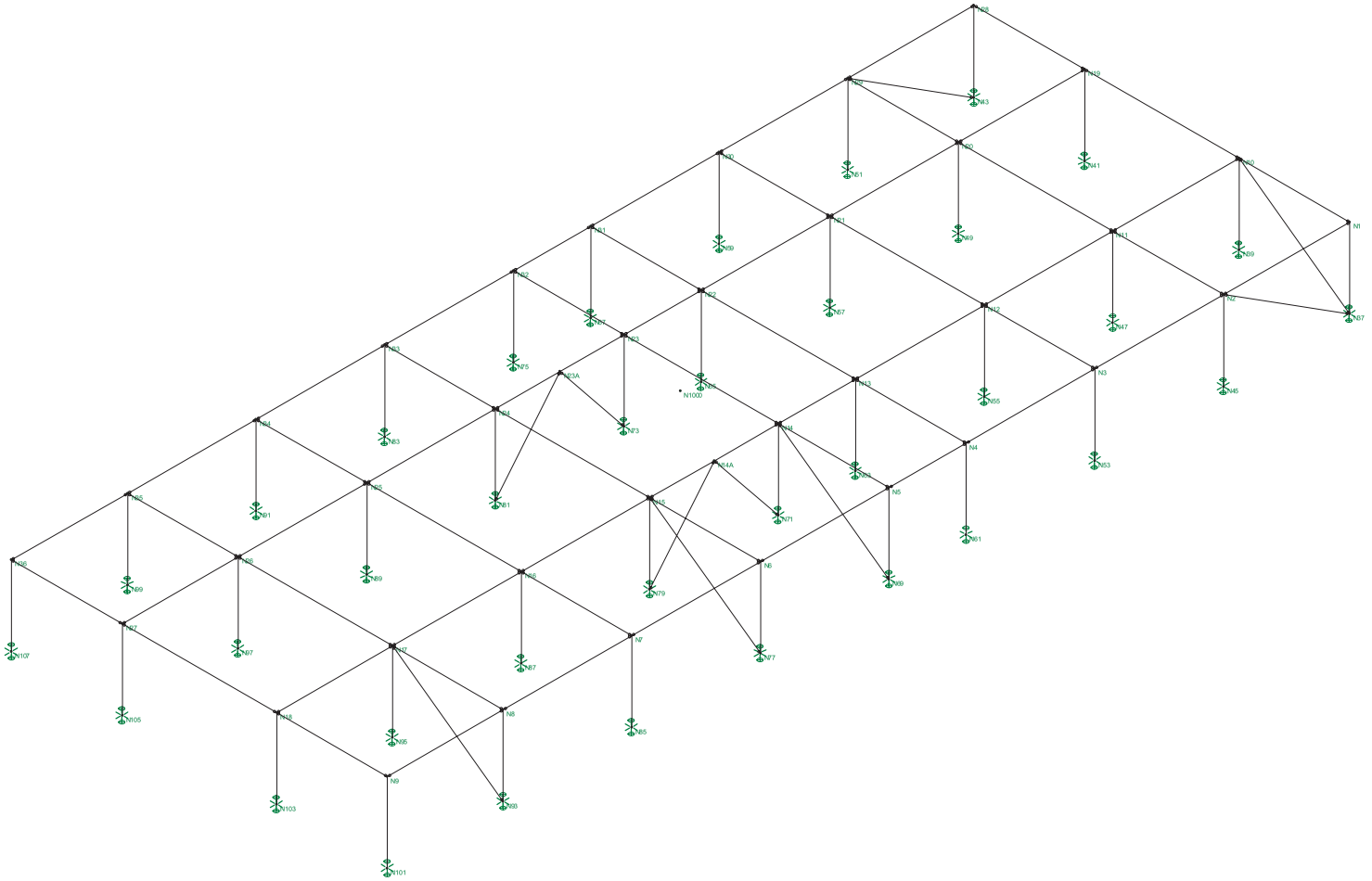
RISA Model

CIC – Detachment 24; Ft. Bliss, Texas



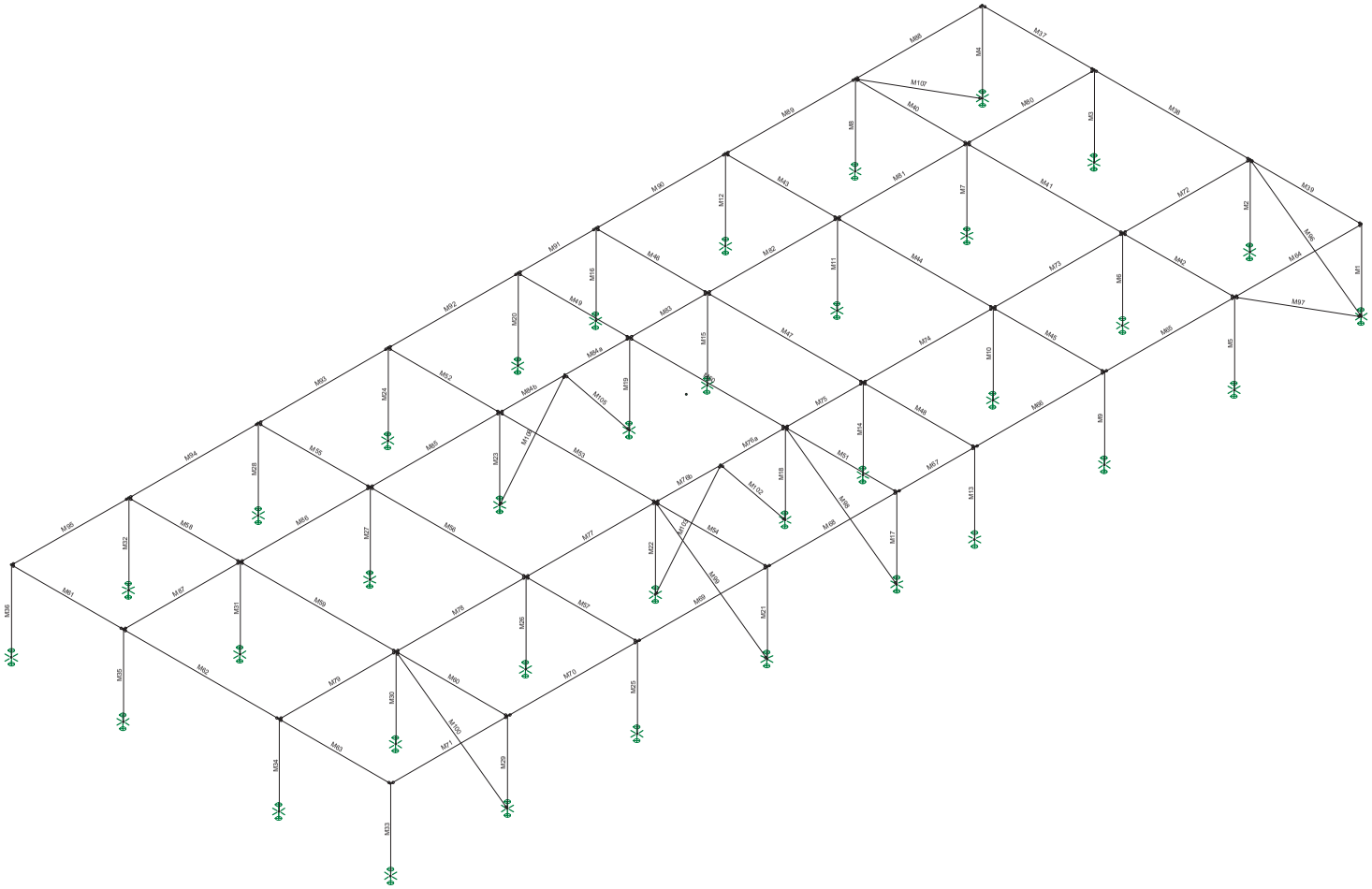
Results for LC 1, LRFD16-1

Parsons Brinckerhoff		SK - 1
T. Corwith	CIC Detachment 24	Feb 24, 2012 at 2:25 PM
173133	Plan View - Nodes	CIC Detachment 24 braced Frames 23-Feb-2012...



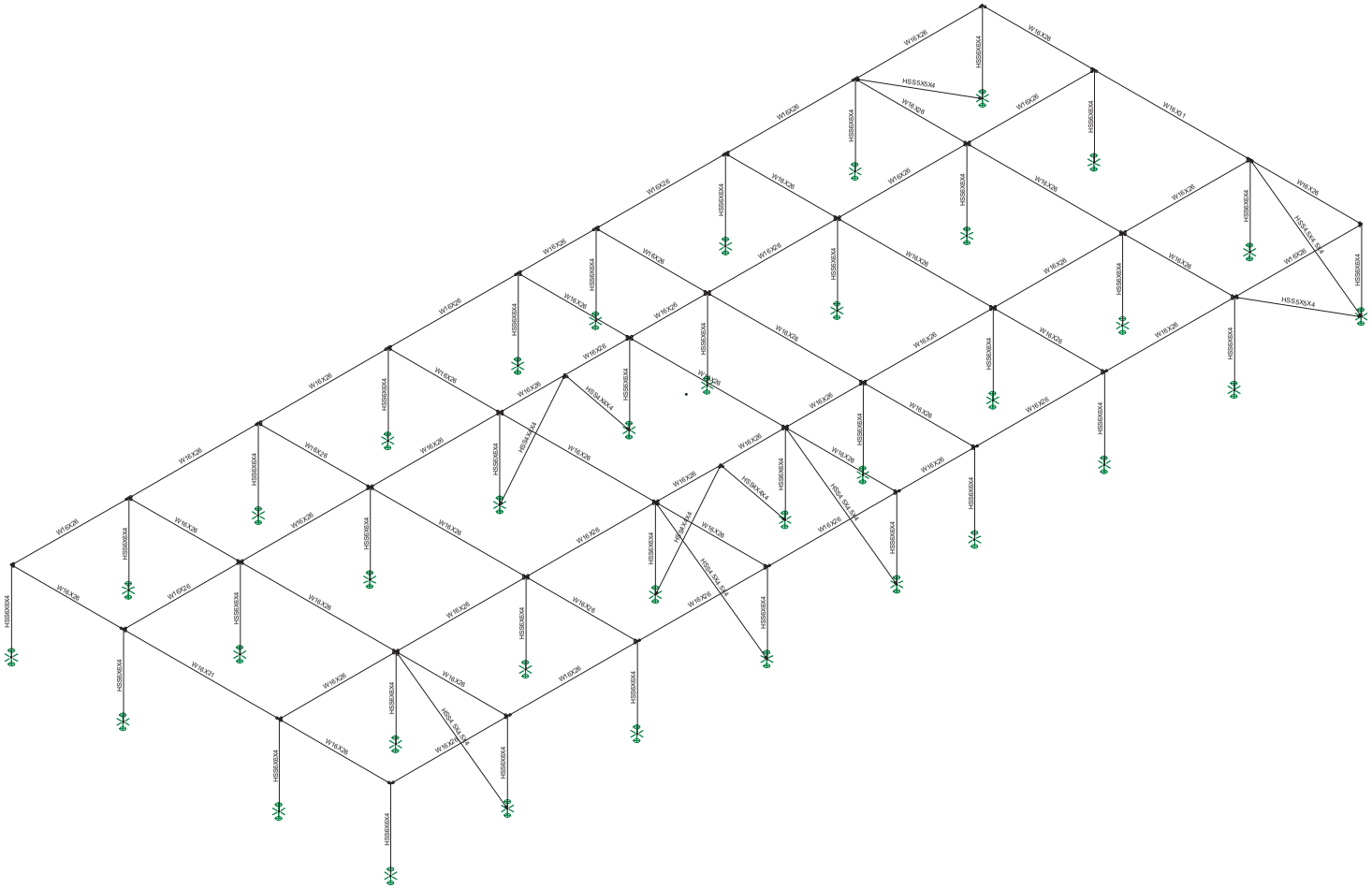
Results for LC 1, LRFD16-1

Parsons Brinckerhoff	CIC Detachment 24	SK - 2
T. Corwith		Apr 25, 2012 at 5:04 PM
173133		CIC Detachment 24 braced Frames 23-Feb-2012...



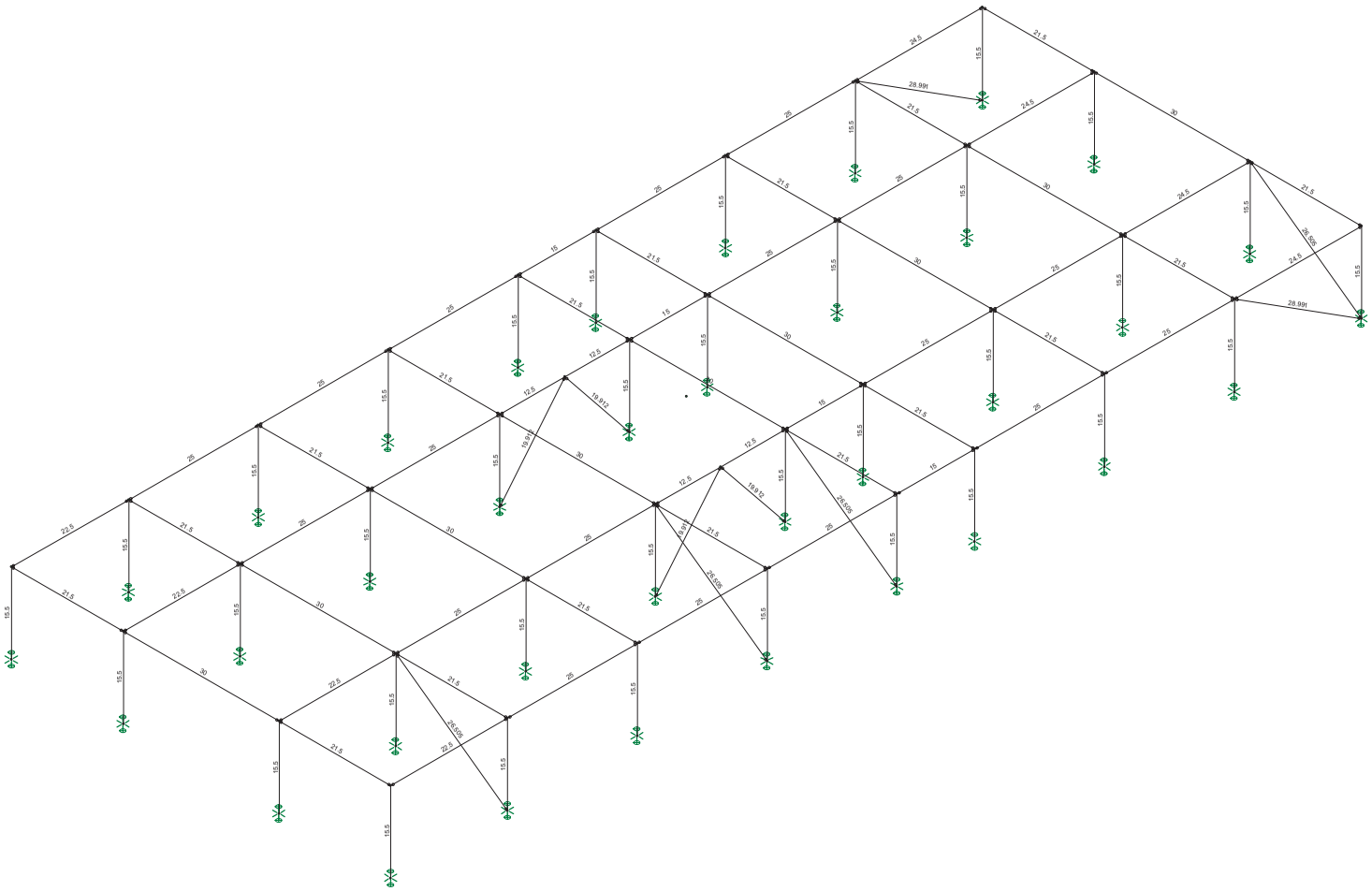
Results for LC 1, LRFD16-1

Parsons Brinckerhoff	CIC Detachment 24	SK - 3
T. Corwith		Apr 25, 2012 at 5:05 PM
173133		CIC Detachment 24 braced Frames 23-Feb-2012...



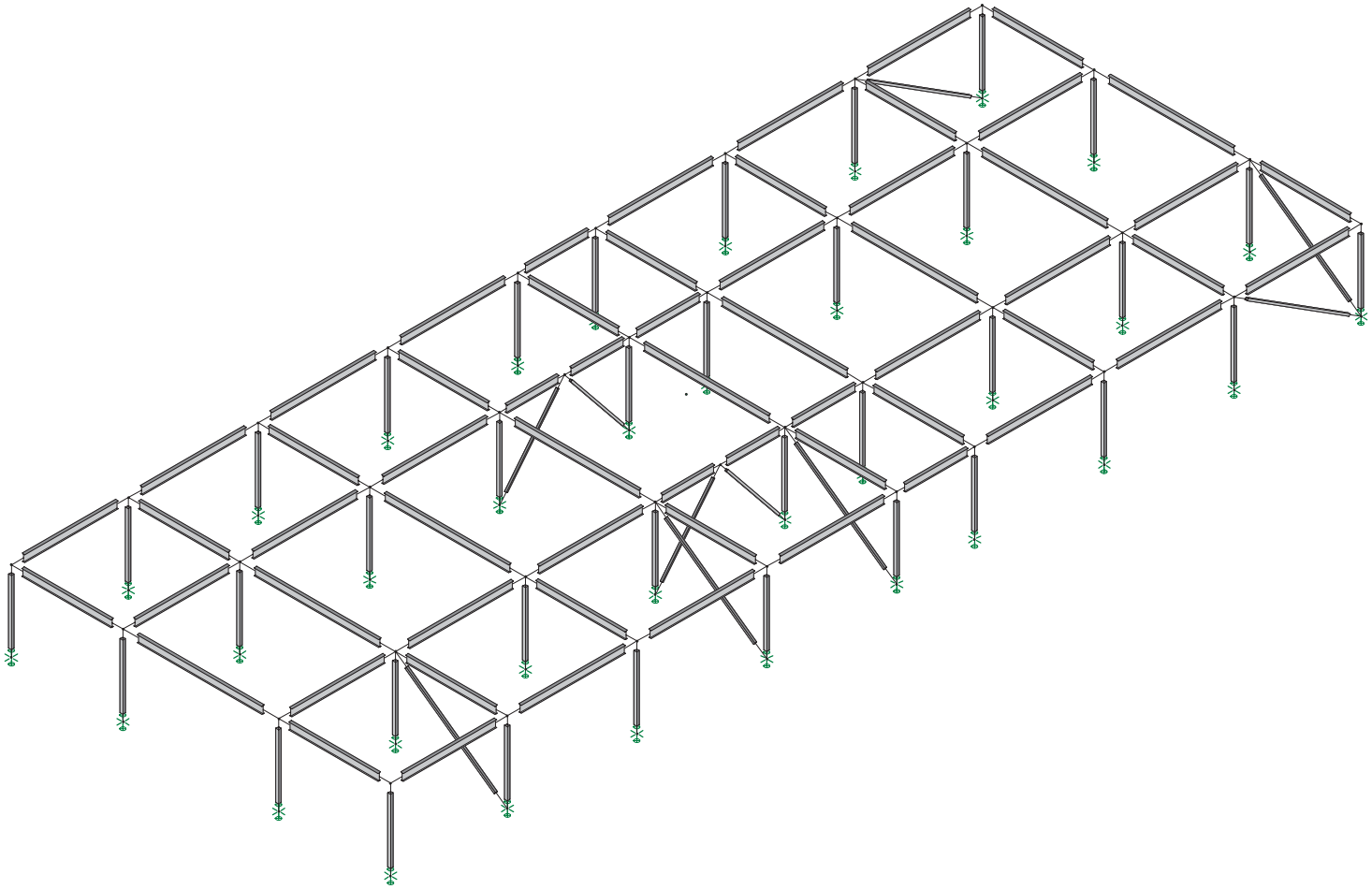
Results for LC 1, LRFD16-1

Parsons Brinckerhoff	CIC Detachment 24	SK - 4
T. Corwith		Apr 25, 2012 at 5:05 PM
173133		CIC Detachment 24 braced Frames 23-Feb-2012...



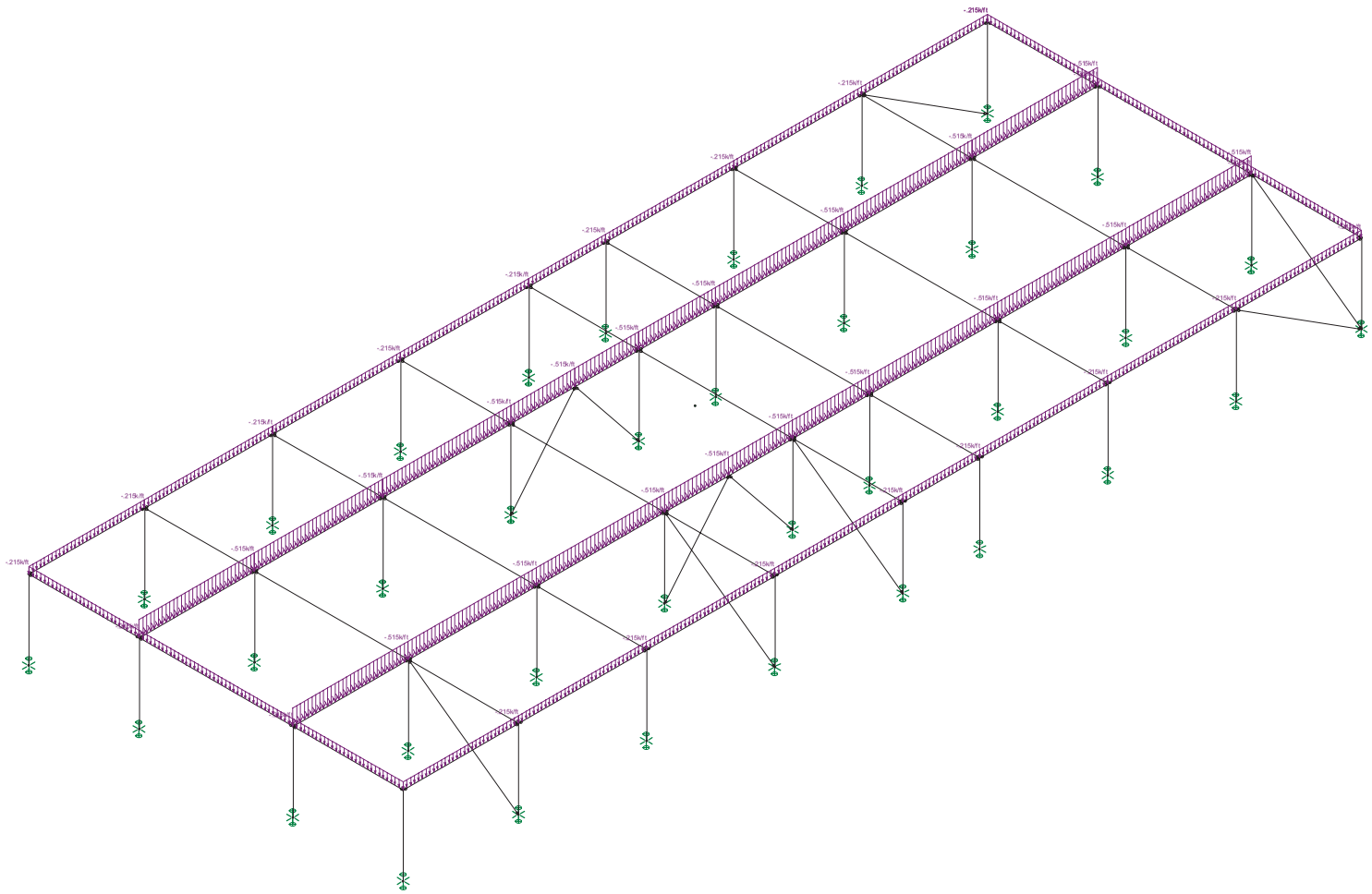
Member Length (ft) Displayed
Results for LC 1, LRFD16-1

Parsons Brinckerhoff	CIC Detachment 24	SK - 5
T. Corwith		Apr 25, 2012 at 5:06 PM
173133		CIC Detachment 24 braced Frames 23-Feb-2012...



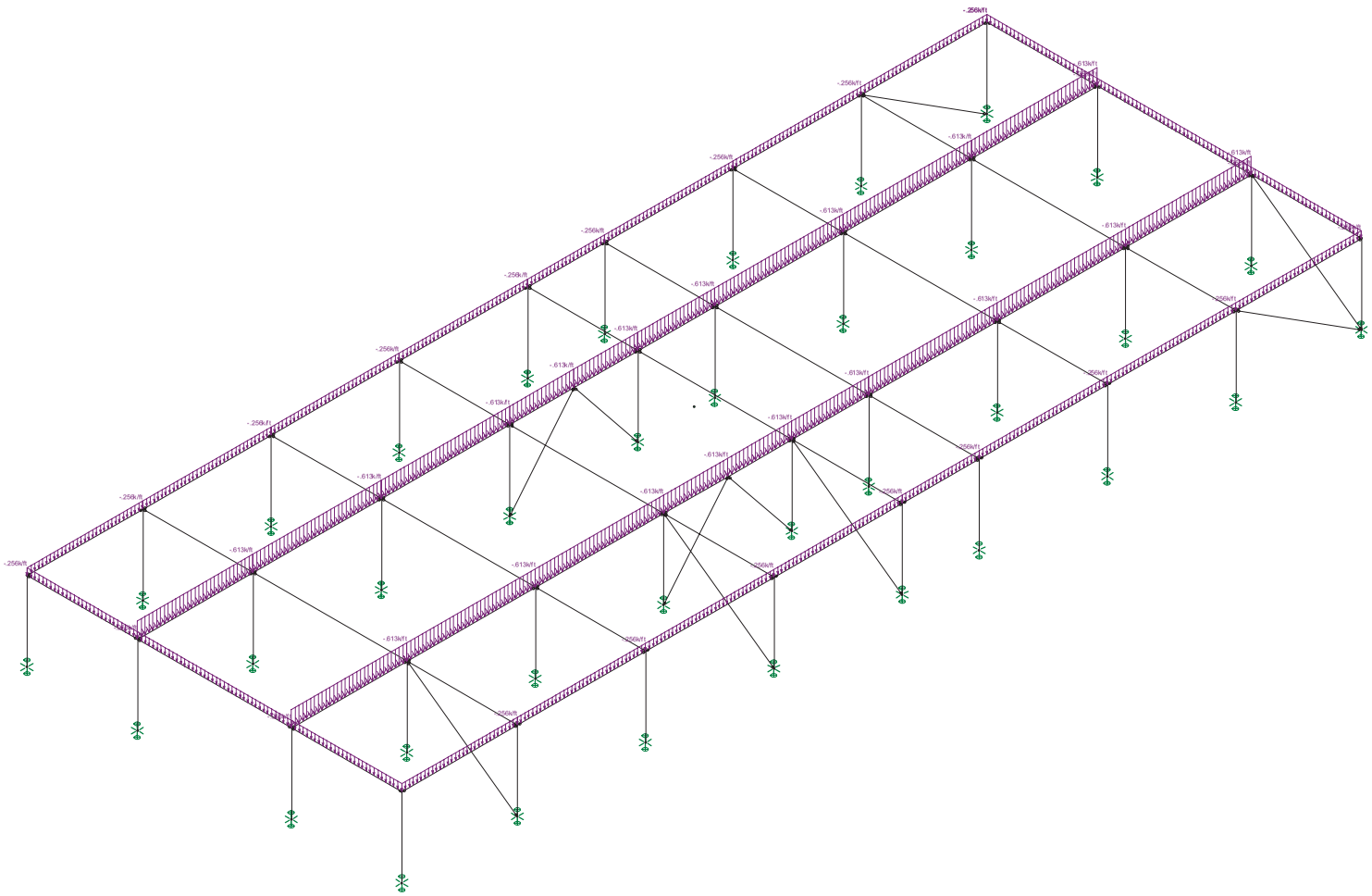
Results for LC 1, LRFD16-1

Parsons Brinckerhoff	CIC Detachment 24	SK - 6
T. Corwith		Apr 25, 2012 at 5:06 PM
173133		CIC Detachment 24 braced Frames 23-Feb-2012...



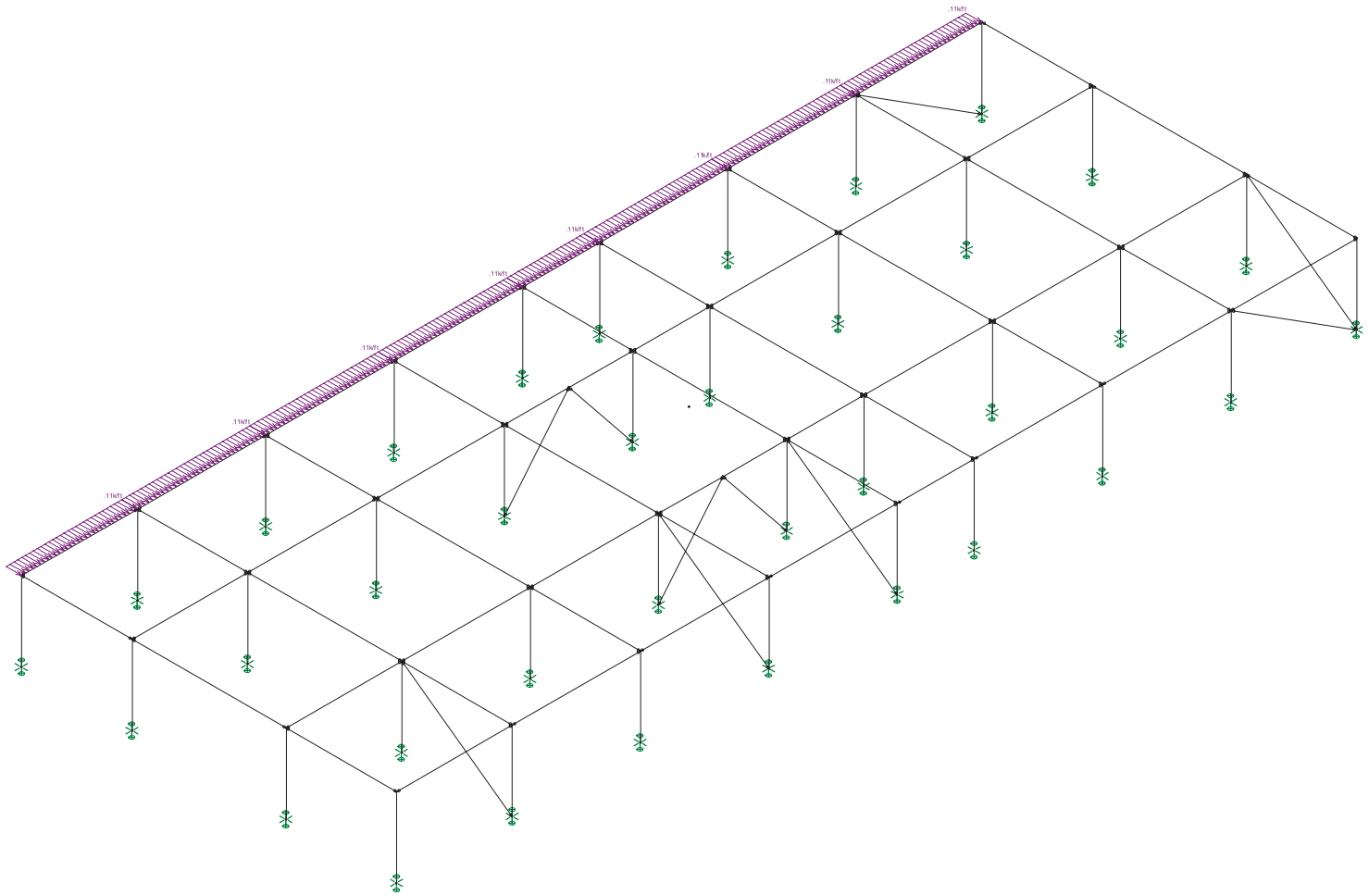
Loads: BLC 2, Roof Live
Results for LC 1, LRFD16-1

Parsons Brinckerhoff	CIC Detachment 24	SK - 7
T. Corwith		Apr 25, 2012 at 5:07 PM
173133		CIC Detachment 24 braced Frames 23-Feb-2012...



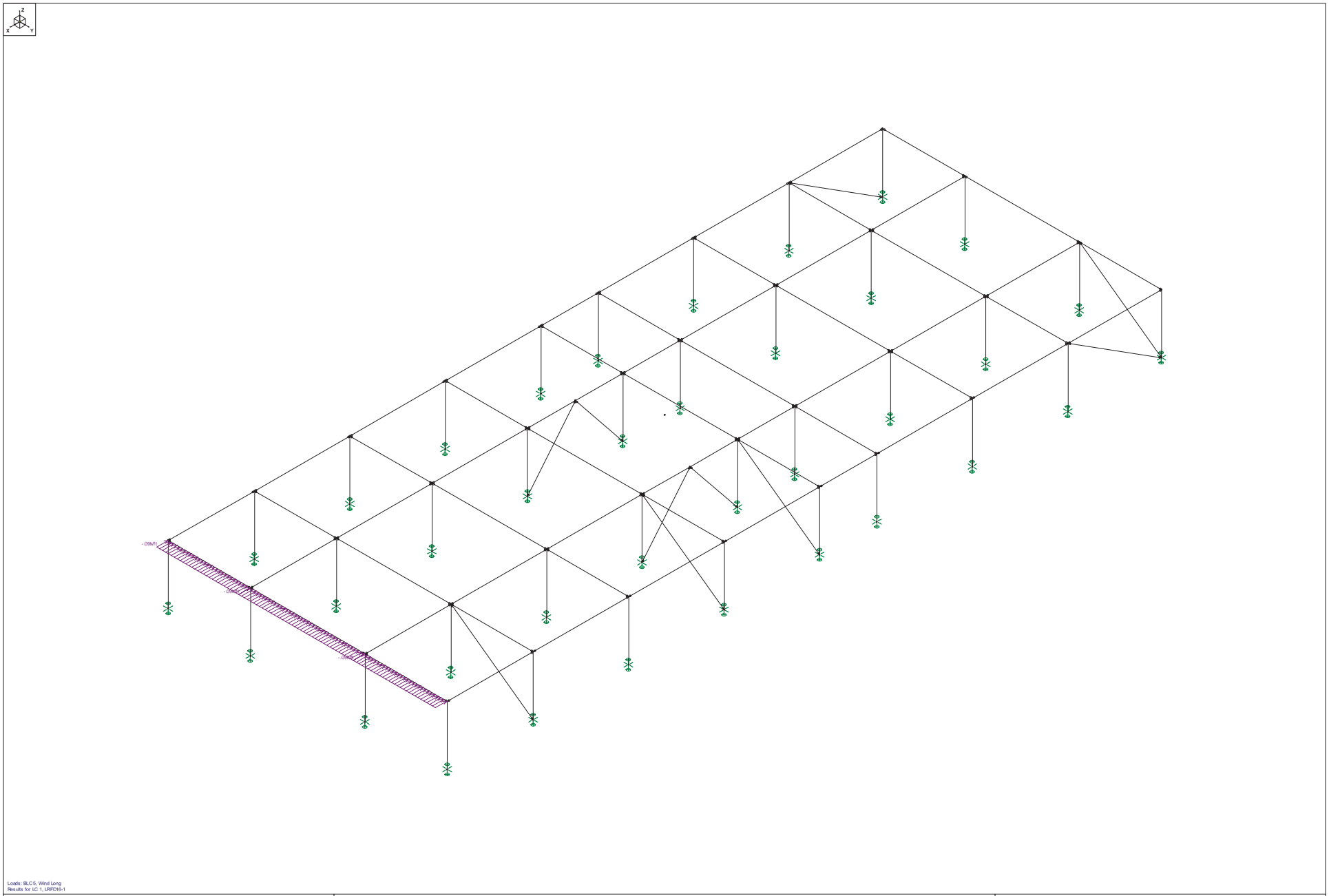
Loads: BLC 3, Superimposed Dead
Results for LC 1, LRFD16-1

Parsons Brinckerhoff	CIC Detachment 24	SK - 8
T. Corwith		Apr 25, 2012 at 5:07 PM
173133		CIC Detachment 24 braced Frames 23-Feb-2012...

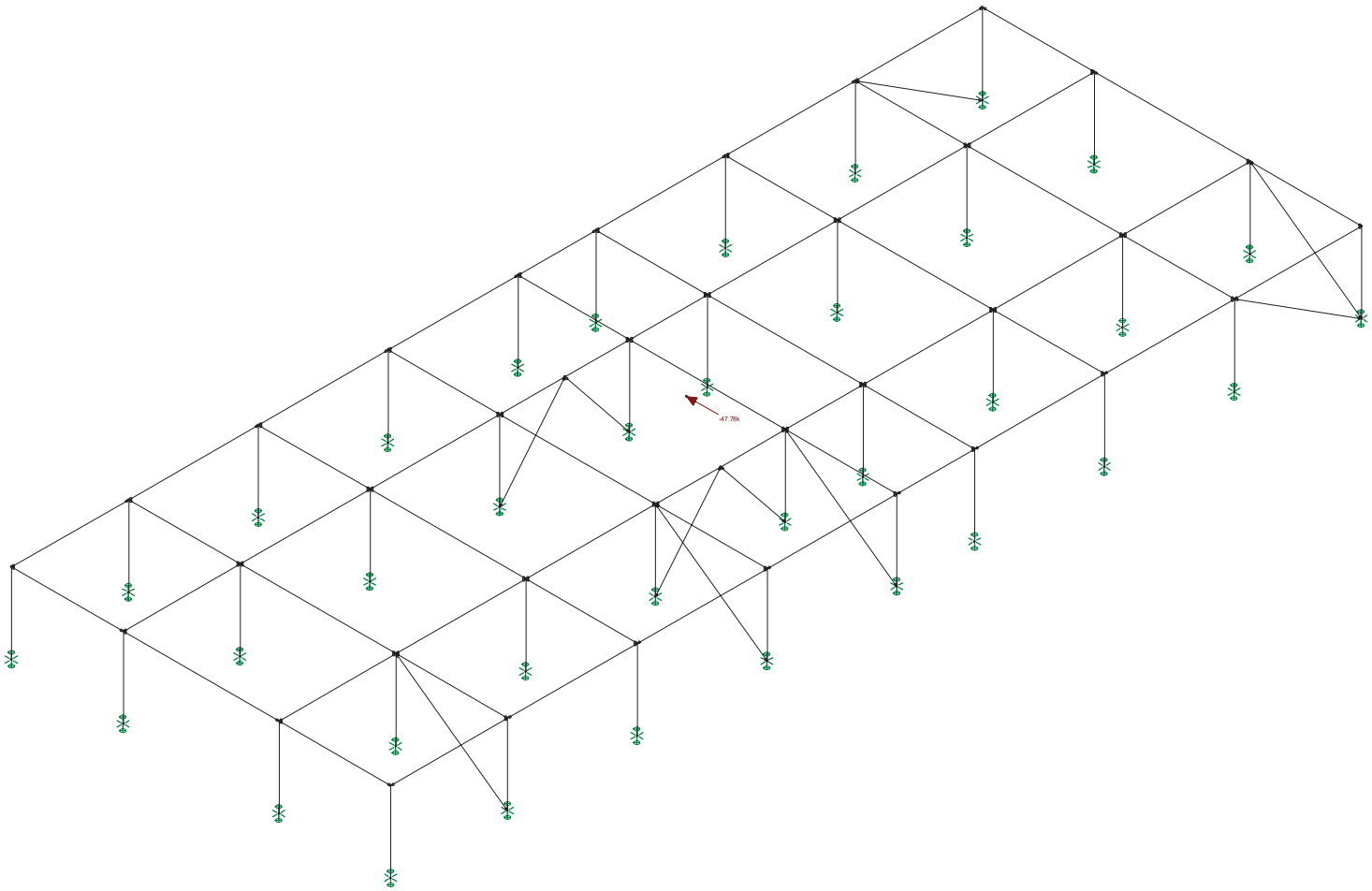


Loads: BLC 4, Wind Trans
Results for LC 1, LRFD16-1

Parsons Brinckerhoff	CIC Detachment 24	SK - 9
T. Corwith		Apr 25, 2012 at 5:07 PM
173133		CIC Detachment 24 braced Frames 23-Feb-2012...

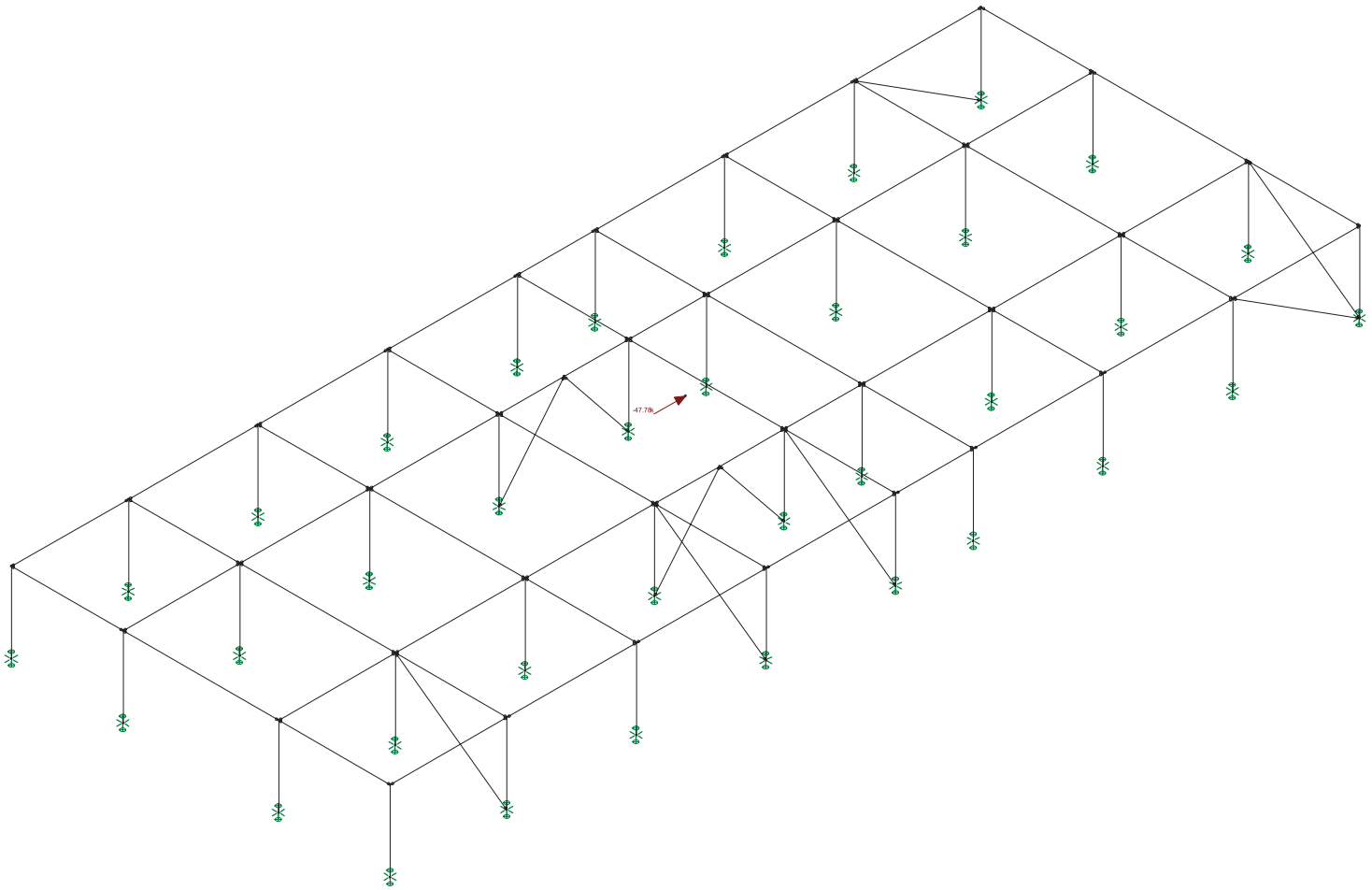


Parsons Brinckerhoff	CIC Detachment 24	SK - 10
T. Corwith		Apr 25, 2012 at 5:07 PM
173133		CIC Detachment 24 braced Frames 23-Feb-2012...



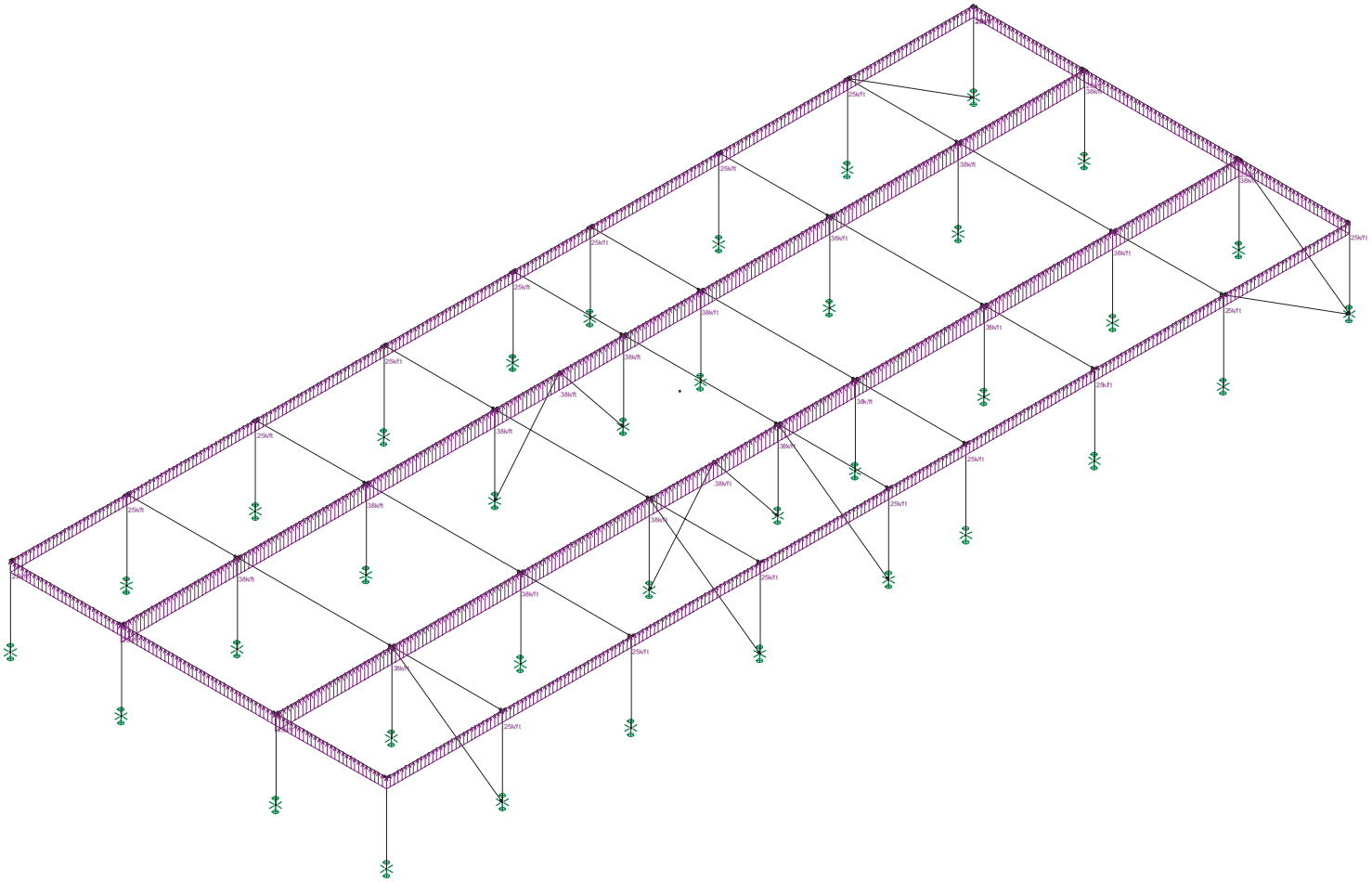
Loads: BLC 6, Seismic Trans
Results for LC 1, LRFD16-1

Parsons Brinckerhoff	CIC Detachment 24	SK - 11
T. Corwith		Apr 25, 2012 at 5:08 PM
173133		CIC Detachment 24 braced Frames 23-Feb-2012...



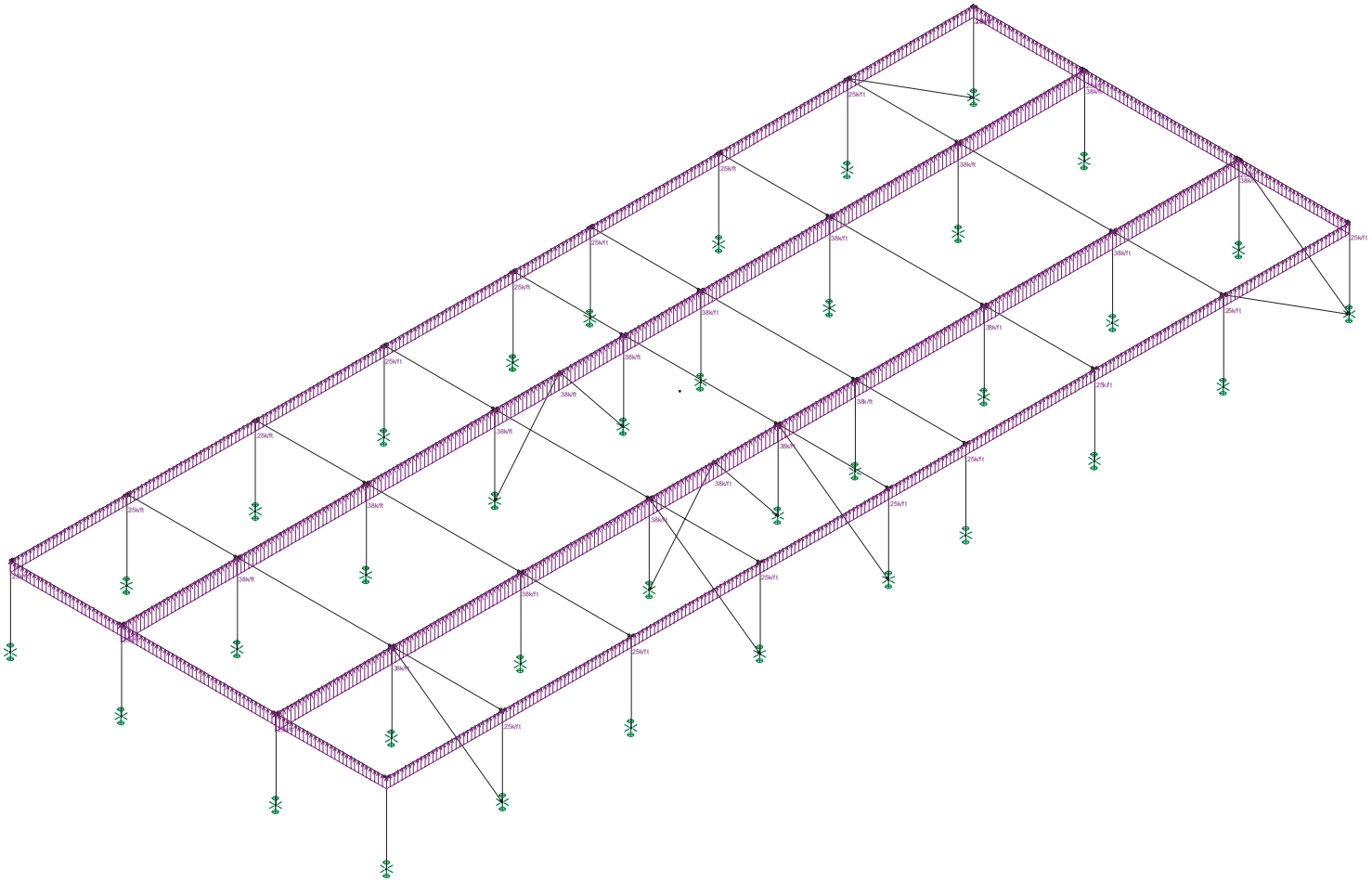
Loads: BLC 7, Seismic Long
Results for LC 1, LRFD16-1

Parsons Brinckerhoff	CIC Detachment 24	SK - 12
T. Corwith		Apr 25, 2012 at 5:08 PM
173133		CIC Detachment 24 braced Frames 23-Feb-2012...



Loads: BLC 6, Wind Trans Uplift
Results for LC 1, LRFD16-1

Parsons Brinckerhoff	CIC Detachment 24	SK - 13
T. Corwith		Apr 25, 2012 at 5:08 PM
173133		CIC Detachment 24 braced Frames 23-Feb-2012...



Loads: BLC 6, Wind Trans Uplift
Results for LC 1, LRFD16-1

Parsons Brinckerhoff	CIC Detachment 24	SK - 14
T. Corwith		Apr 25, 2012 at 5:08 PM
173133		CIC Detachment 24 braced Frames 23-Feb-2012...

Global

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation	Yes
Include Warping	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Vertical Axis	Z
Global Member Orientation Plane	XY

Hot Rolled Steel Code	AISC 13th(360-05): LRFD (Direct Analysis Method)
Cold Formed Steel Code	AISI NAS-07: ASD
Wood Code	AF&PA NDS-05/08: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-08
Masonry Code	ACI 530-05/08: ASD
Aluminum Code	AA ADM1-05: ASD

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections	Yes
Bad Framing Warnings	No
Unused Force Warnings	Yes

Seismic Code	ASCE 7-05
Seismic Base Elevation (ft)	Not Entered
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
Ca	.36
Cv	.54
Nv	1
SD1	1
SDS	1
S1	1
TL (sec)	5
Occupancy Code	4
Seismic Zone	3
Occupancy Cat	I or II
Use Gravity Self Wt in Diaphragm Mass	Yes
Use Deck Self Wt in Diaphragm Mass	Yes
Use Lateral Self Wt in Diaphragm Mass	Yes
Seismic Detailing Code	None
Om X	1
Om Z	1
Rho X	1
Rho Z	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E..Density[k/ft...		Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.4	58	1.3

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N37	N1			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
2	M2	N39	N10			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
3	M3	N41	N19			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
4	M4	N43	N28			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
5	M5	N45	N2			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
6	M6	N47	N11			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
7	M7	N49	N20			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
8	M8	N51	N29			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
9	M9	N53	N3			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
10	M10	N55	N12			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
11	M11	N57	N21			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
12	M12	N59	N30			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
13	M13	N61	N4			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
14	M14	N63	N13			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
15	M15	N65	N22			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
16	M16	N67	N31			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
17	M17	N69	N5			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
18	M18	N71	N14			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
19	M19	N73	N23			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
20	M20	N75	N32			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
21	M21	N77	N6			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
22	M22	N79	N15			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
23	M23	N81	N24			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
24	M24	N83	N33			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
25	M25	N85	N7			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
26	M26	N87	N16			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
27	M27	N89	N25			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
28	M28	N91	N34			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
29	M29	N93	N8			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
30	M30	N95	N17			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
31	M31	N97	N26			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
32	M32	N99	N35			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
33	M33	N101	N9			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
34	M34	N103	N18			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
35	M35	N105	N27			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
36	M36	N107	N36			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
37	M37	N28	N19			W16X26	Beam	Wide Flange	A992	Typical
38	M38	N19	N10			W16X31	Beam	Wide Flange	A992	Typical
39	M39	N10	N1			W16X26	Beam	Wide Flange	A992	Typical
40	M40	N29	N20			W16X26	Beam	Wide Flange	A992	Typical
41	M41	N20	N11			W16X26	Beam	Wide Flange	A992	Typical
42	M42	N11	N2			W16X26	Beam	Wide Flange	A992	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
43	M43	N30	N21			W16X26	Beam	Wide Flange	A992	Typical
44	M44	N21	N12			W16X26	Beam	Wide Flange	A992	Typical
45	M45	N12	N3			W16X26	Beam	Wide Flange	A992	Typical
46	M46	N31	N22			W16X26	Beam	Wide Flange	A992	Typical
47	M47	N22	N13			W16X26	Beam	Wide Flange	A992	Typical
48	M48	N13	N4			W16X26	Beam	Wide Flange	A992	Typical
49	M49	N32	N23			W16X26	Beam	Wide Flange	A992	Typical
50	M50	N23	N14			W16X26	Beam	Wide Flange	A992	Typical
51	M51	N14	N5			W16X26	Beam	Wide Flange	A992	Typical
52	M52	N33	N24			W16X26	Beam	Wide Flange	A992	Typical
53	M53	N24	N15			W16X26	Beam	Wide Flange	A992	Typical
54	M54	N15	N6			W16X26	Beam	Wide Flange	A992	Typical
55	M55	N34	N25			W16X26	Beam	Wide Flange	A992	Typical
56	M56	N25	N16			W16X26	Beam	Wide Flange	A992	Typical
57	M57	N16	N7			W16X26	Beam	Wide Flange	A992	Typical
58	M58	N35	N26			W16X26	Beam	Wide Flange	A992	Typical
59	M59	N26	N17			W16X26	Beam	Wide Flange	A992	Typical
60	M60	N17	N8			W16X26	Beam	Wide Flange	A992	Typical
61	M61	N36	N27			W16X26	Beam	Wide Flange	A992	Typical
62	M62	N27	N18			W16X31	Beam	Wide Flange	A992	Typical
63	M63	N18	N9			W16X26	Beam	Wide Flange	A992	Typical
64	M64	N1	N2			W16X26	Beam	Wide Flange	A992	Typical
65	M65	N2	N3			W16X26	Beam	Wide Flange	A992	Typical
66	M66	N3	N4			W16X26	Beam	Wide Flange	A992	Typical
67	M67	N4	N5			W16X26	Beam	Wide Flange	A992	Typical
68	M68	N5	N6			W16X26	Beam	Wide Flange	A992	Typical
69	M69	N6	N7			W16X26	Beam	Wide Flange	A992	Typical
70	M70	N7	N8			W16X26	Beam	Wide Flange	A992	Typical
71	M71	N8	N9			W16X26	Beam	Wide Flange	A992	Typical
72	M72	N10	N11			W16X26	Beam	Wide Flange	A992	Typical
73	M73	N11	N12			W16X26	Beam	Wide Flange	A992	Typical
74	M74	N12	N13			W16X26	Beam	Wide Flange	A992	Typical
75	M75	N13	N14			W16X26	Beam	Wide Flange	A992	Typical
76	M76a	N14	N14A			W16X26	Beam	Wide Flange	A992	Typical
77	M77	N15	N16			W16X26	Beam	Wide Flange	A992	Typical
78	M78	N16	N17			W16X26	Beam	Wide Flange	A992	Typical
79	M79	N17	N18			W16X26	Beam	Wide Flange	A992	Typical
80	M80	N19	N20			W16X26	Beam	Wide Flange	A992	Typical
81	M81	N20	N21			W16X26	Beam	Wide Flange	A992	Typical
82	M82	N21	N22			W16X26	Beam	Wide Flange	A992	Typical
83	M83	N22	N23			W16X26	Beam	Wide Flange	A992	Typical
84	M84a	N23	N23A			W16X26	Beam	Wide Flange	A992	Typical
85	M85	N24	N25			W16X26	Beam	Wide Flange	A992	Typical
86	M86	N25	N26			W16X26	Beam	Wide Flange	A992	Typical
87	M87	N26	N27			W16X26	Beam	Wide Flange	A992	Typical
88	M88	N28	N29			W16X26	Beam	Wide Flange	A992	Typical
89	M89	N29	N30			W16X26	Beam	Wide Flange	A992	Typical
90	M90	N30	N31			W16X26	Beam	Wide Flange	A992	Typical
91	M91	N31	N32			W16X26	Beam	Wide Flange	A992	Typical
92	M92	N32	N33			W16X26	Beam	Wide Flange	A992	Typical
93	M93	N33	N34			W16X26	Beam	Wide Flange	A992	Typical
94	M94	N34	N35			W16X26	Beam	Wide Flange	A992	Typical
95	M95	N35	N36			W16X26	Beam	Wide Flange	A992	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
96	M96	N10	N37			HSS4.5X4.5X4	VBrace	Tube	A500 Gr.46	Typical
97	M97	N37	N2			HSS5X5X4	VBrace	Tube	A500 Gr.46	Typical
98	M98	N69	N14			HSS4.5X4.5X4	VBrace	Tube	A500 Gr.46	Typical
99	M99	N77	N15			HSS4.5X4.5X4	VBrace	Tube	A500 Gr.46	Typical
100	M102	N71	N14A			HSS4X4X4	VBrace	Tube	A500 Gr.46	Typical
101	M103	N79	N14A			HSS4X4X4	VBrace	Tube	A500 Gr.46	Typical
102	M105	N73	N23A			HSS4X4X4	VBrace	Tube	A500 Gr.46	Typical
103	M106	N81	N23A			HSS4X4X4	VBrace	Tube	A500 Gr.46	Typical
104	M107	N43	N29			HSS5X5X4	VBrace	Tube	A500 Gr.46	Typical
105	M84b	N23A	N24			W16X26	Beam	Wide Flange	A992	Typical
106	M76b	N14A	N15			W16X26	Beam	Wide Flange	A992	Typical
107	M100	N93	N17			HSS4.5X4.5X4	VBrace	Tube	A500 Gr.46	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	TOM	Inactive	Seismic Design ...
1	M1						Yes			None
2	M2						Yes			None
3	M3						Yes			None
4	M4						Yes			None
5	M5						Yes			None
6	M6						Yes			None
7	M7						Yes			None
8	M8						Yes			None
9	M9						Yes			None
10	M10						Yes			None
11	M11						Yes			None
12	M12						Yes			None
13	M13						Yes			None
14	M14						Yes			None
15	M15						Yes			None
16	M16						Yes			None
17	M17						Yes			None
18	M18						Yes			None
19	M19						Yes			None
20	M20						Yes			None
21	M21						Yes			None
22	M22						Yes			None
23	M23						Yes			None
24	M24						Yes			None
25	M25						Yes			None
26	M26						Yes			None
27	M27						Yes			None
28	M28						Yes			None
29	M29						Yes			None
30	M30						Yes			None
31	M31						Yes			None
32	M32						Yes			None
33	M33						Yes			None
34	M34						Yes			None
35	M35						Yes			None
36	M36						Yes			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	TOM	Inactive	Seismic Design ...
37	M37	BenPIN	BenPIN				Yes			None
38	M38	BenPIN	BenPIN				Yes			None
39	M39	BenPIN	BenPIN				Yes			None
40	M40	BenPIN	BenPIN				Yes			None
41	M41	BenPIN	BenPIN				Yes			None
42	M42	BenPIN	BenPIN				Yes			None
43	M43	BenPIN	BenPIN				Yes			None
44	M44	BenPIN	BenPIN				Yes			None
45	M45	BenPIN	BenPIN				Yes			None
46	M46	BenPIN	BenPIN				Yes			None
47	M47	BenPIN	BenPIN				Yes			None
48	M48	BenPIN	BenPIN				Yes			None
49	M49	BenPIN	BenPIN				Yes			None
50	M50	BenPIN	BenPIN				Yes			None
51	M51	BenPIN	BenPIN				Yes			None
52	M52	BenPIN	BenPIN				Yes			None
53	M53	BenPIN	BenPIN				Yes			None
54	M54	BenPIN	BenPIN				Yes			None
55	M55	BenPIN	BenPIN				Yes			None
56	M56	BenPIN	BenPIN				Yes			None
57	M57	BenPIN	BenPIN				Yes			None
58	M58	BenPIN	BenPIN				Yes			None
59	M59	BenPIN	BenPIN				Yes			None
60	M60	BenPIN	BenPIN				Yes			None
61	M61	BenPIN	BenPIN				Yes			None
62	M62	BenPIN	BenPIN				Yes			None
63	M63	BenPIN	BenPIN				Yes			None
64	M64	BenPIN	BenPIN				Yes			None
65	M65	BenPIN	BenPIN				Yes			None
66	M66	BenPIN	BenPIN				Yes			None
67	M67	BenPIN	BenPIN				Yes			None
68	M68	BenPIN	BenPIN				Yes			None
69	M69	BenPIN	BenPIN				Yes			None
70	M70	BenPIN	BenPIN				Yes			None
71	M71	BenPIN	BenPIN				Yes			None
72	M72	BenPIN	BenPIN				Yes			None
73	M73	BenPIN	BenPIN				Yes			None
74	M74	BenPIN	BenPIN				Yes			None
75	M75	BenPIN	BenPIN				Yes			None
76	M76a	BenPIN					Yes			None
77	M77	BenPIN	BenPIN				Yes			None
78	M78	BenPIN	BenPIN				Yes			None
79	M79	BenPIN	BenPIN				Yes			None
80	M80	BenPIN	BenPIN				Yes			None
81	M81	BenPIN	BenPIN				Yes			None
82	M82	BenPIN	BenPIN				Yes			None
83	M83	BenPIN	BenPIN				Yes			None
84	M84a	BenPIN					Yes			None
85	M85	BenPIN	BenPIN				Yes			None
86	M86	BenPIN	BenPIN				Yes			None
87	M87	BenPIN	BenPIN				Yes			None
88	M88	BenPIN	BenPIN				Yes			None
89	M89	BenPIN	BenPIN				Yes			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	TOM	Inactive	Seismic Design ...
90	M90	BenPIN	BenPIN				Yes			None
91	M91	BenPIN	BenPIN				Yes			None
92	M92	BenPIN	BenPIN				Yes			None
93	M93	BenPIN	BenPIN				Yes			None
94	M94	BenPIN	BenPIN				Yes			None
95	M95	BenPIN	BenPIN				Yes			None
96	M96	BenPIN	AllPIN				Yes			None
97	M97	BenPIN	AllPIN				Yes			None
98	M98	BenPIN	AllPIN				Yes			None
99	M99	BenPIN	AllPIN				Yes			None
100	M102	BenPIN	AllPIN				Yes			None
101	M103	BenPIN	AllPIN				Yes			None
102	M105	BenPIN	AllPIN				Yes			None
103	M106	BenPIN	AllPIN				Yes			None
104	M107	BenPIN	AllPIN				Yes			None
105	M84b		BenPIN				Yes			None
106	M76b		BenPIN				Yes			None
107	M100	BenPIN	BenPIN				Yes			None

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	73	14	0	
2	N2	24.5	73	14	0	
3	N3	49.5	73	14	0	
4	N4	74.5	73	14	0	
5	N5	89.5	73	14	0	
6	N6	114.5	73	14	0	
7	N7	139.5	73	14	0	
8	N8	164.5	73	14	0	
9	N9	187	73	14	0	
10	N10	0	51.5	14	0	
11	N11	24.5	51.5	14	0	
12	N12	49.5	51.5	14	0	
13	N13	74.5	51.5	14	0	
14	N14	89.5	51.5	14	0	
15	N15	114.5	51.5	14	0	
16	N16	139.5	51.5	14	0	
17	N17	164.5	51.5	14	0	
18	N18	187	51.5	14	0	
19	N19	0	21.5	14	0	
20	N20	24.5	21.5	14	0	
21	N21	49.5	21.5	14	0	
22	N22	74.5	21.5	14	0	
23	N23	89.5	21.5	14	0	
24	N24	114.5	21.5	14	0	
25	N25	139.5	21.5	14	0	
26	N26	164.5	21.5	14	0	
27	N27	187	21.5	14	0	
28	N28	0	0	14	0	
29	N29	24.5	0	14	0	
30	N30	49.5	0	14	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
31	N31	74.5	0	14	0	
32	N32	89.5	0	14	0	
33	N33	114.5	0	14	0	
34	N34	139.5	0	14	0	
35	N35	164.5	0	14	0	
36	N36	187	0	14	0	
37	N37	0	73	-1.5	0	
38	N39	0	51.5	-1.5	0	
39	N41	0	21.5	-1.5	0	
40	N43	0	0	-1.5	0	
41	N45	24.5	73	-1.5	0	
42	N47	24.5	51.5	-1.5	0	
43	N49	24.5	21.5	-1.5	0	
44	N51	24.5	0	-1.5	0	
45	N53	49.5	73	-1.5	0	
46	N55	49.5	51.5	-1.5	0	
47	N57	49.5	21.5	-1.5	0	
48	N59	49.5	0	-1.5	0	
49	N61	74.5	73	-1.5	0	
50	N63	74.5	51.5	-1.5	0	
51	N65	74.5	21.5	-1.5	0	
52	N67	74.5	0	-1.5	0	
53	N69	89.5	73	-1.5	0	
54	N71	89.5	51.5	-1.5	0	
55	N73	89.5	21.5	-1.5	0	
56	N75	89.5	0	-1.5	0	
57	N77	114.5	73	-1.5	0	
58	N79	114.5	51.5	-1.5	0	
59	N81	114.5	21.5	-1.5	0	
60	N83	114.5	0	-1.5	0	
61	N85	139.5	73	-1.5	0	
62	N87	139.5	51.5	-1.5	0	
63	N89	139.5	21.5	-1.5	0	
64	N91	139.5	0	-1.5	0	
65	N93	164.5	73	-1.5	0	
66	N95	164.5	51.5	-1.5	0	
67	N97	164.5	21.5	-1.5	0	
68	N99	164.5	0	-1.5	0	
69	N101	187	73	-1.5	0	
70	N103	187	51.5	-1.5	0	
71	N105	187	21.5	-1.5	0	
72	N107	187	0	-1.5	0	
73	N14A	102	51.5	14	51.5	
74	N1000	93.5	36.5	14	0	
75	N23A	102	21.5	14	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]	Footing
1	N1							
2	N2							
3	N3							

Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]	Footing
4	N4							
5	N5							
6	N6							
7	N7							
8	N8							
9	N9							
10	N10							
11	N11							
12	N12							
13	N13							
14	N14							
15	N15							
16	N16							
17	N17							
18	N18							
19	N19							
20	N20							
21	N21							
22	N22							
23	N23							
24	N24							
25	N25							
26	N26							
27	N27							
28	N28							
29	N29							
30	N30							
31	N31							
32	N32							
33	N33							
34	N34							
35	N35							
36	N36							
37	N37	Reaction	Reaction	Reaction			Fixed	
38	N39	Reaction	Reaction	Reaction			Fixed	
39	N41	Reaction	Reaction	Reaction			Fixed	
40	N43	Reaction	Reaction	Reaction			Fixed	
41	N45	Reaction	Reaction	Reaction			Fixed	
42	N47	Reaction	Reaction	Reaction			Fixed	
43	N49	Reaction	Reaction	Reaction			Fixed	
44	N51	Reaction	Reaction	Reaction			Fixed	
45	N53	Reaction	Reaction	Reaction			Fixed	
46	N55	Reaction	Reaction	Reaction			Fixed	
47	N57	Reaction	Reaction	Reaction			Fixed	
48	N59	Reaction	Reaction	Reaction			Fixed	
49	N61	Reaction	Reaction	Reaction			Fixed	
50	N63	Reaction	Reaction	Reaction			Fixed	
51	N65	Reaction	Reaction	Reaction			Fixed	
52	N67	Reaction	Reaction	Reaction			Fixed	
53	N69	Reaction	Reaction	Reaction			Fixed	
54	N71	Reaction	Reaction	Reaction			Fixed	
55	N73	Reaction	Reaction	Reaction			Fixed	
56	N75	Reaction	Reaction	Reaction			Fixed	

Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]	Footing
57	N77	Reaction	Reaction	Reaction			Fixed	
58	N79	Reaction	Reaction	Reaction			Fixed	
59	N81	Reaction	Reaction	Reaction			Fixed	
60	N83	Reaction	Reaction	Reaction			Fixed	
61	N85	Reaction	Reaction	Reaction			Fixed	
62	N87	Reaction	Reaction	Reaction			Fixed	
63	N89	Reaction	Reaction	Reaction			Fixed	
64	N91	Reaction	Reaction	Reaction			Fixed	
65	N93	Reaction	Reaction	Reaction			Fixed	
66	N95	Reaction	Reaction	Reaction			Fixed	
67	N97	Reaction	Reaction	Reaction			Fixed	
68	N99	Reaction	Reaction	Reaction			Fixed	
69	N101	Reaction	Reaction	Reaction			Fixed	
70	N103	Reaction	Reaction	Reaction			Fixed	
71	N105	Reaction	Reaction	Reaction			Fixed	
72	N107	Reaction	Reaction	Reaction			Fixed	

Hot Rolled Steel Design Parameters

	Label	Shape	Lengt...	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	Kyy	Kzz	Cm-yy	Cm-zz	Cb	y sw...z sw...	Function
1	M1	HSS6X6...	15.5											Lateral
2	M2	HSS6X6...	15.5											Lateral
3	M3	HSS6X6...	15.5											Lateral
4	M4	HSS6X6...	15.5											Lateral
5	M5	HSS6X6...	15.5											Lateral
6	M6	HSS6X6...	15.5											Lateral
7	M7	HSS6X6...	15.5											Lateral
8	M8	HSS6X6...	15.5											Lateral
9	M9	HSS6X6...	15.5											Lateral
10	M10	HSS6X6...	15.5											Lateral
11	M11	HSS6X6...	15.5											Lateral
12	M12	HSS6X6...	15.5											Lateral
13	M13	HSS6X6...	15.5											Lateral
14	M14	HSS6X6...	15.5											Lateral
15	M15	HSS6X6...	15.5											Lateral
16	M16	HSS6X6...	15.5											Lateral
17	M17	HSS6X6...	15.5											Lateral
18	M18	HSS6X6...	15.5											Lateral
19	M19	HSS6X6...	15.5											Lateral
20	M20	HSS6X6...	15.5											Lateral
21	M21	HSS6X6...	15.5											Lateral
22	M22	HSS6X6...	15.5											Lateral
23	M23	HSS6X6...	15.5											Lateral
24	M24	HSS6X6...	15.5											Lateral
25	M25	HSS6X6...	15.5											Lateral
26	M26	HSS6X6...	15.5											Lateral
27	M27	HSS6X6...	15.5											Lateral
28	M28	HSS6X6...	15.5											Lateral
29	M29	HSS6X6...	15.5											Lateral
30	M30	HSS6X6...	15.5											Lateral
31	M31	HSS6X6...	15.5											Lateral
32	M32	HSS6X6...	15.5											Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Lengt...	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	Kyy	Kzz	Cm-yy	Cm-zz	Cb	y sw...	z sw...	Function
33	M33	HSS6X6...	15.5												Lateral
34	M34	HSS6X6...	15.5												Lateral
35	M35	HSS6X6...	15.5												Lateral
36	M36	HSS6X6...	15.5												Lateral
37	M37	W16X26	21.5			5	10.75								Lateral
38	M38	W16X31	30			5	15								Lateral
39	M39	W16X26	21.5			5	10.75								Lateral
40	M40	W16X26	21.5												Lateral
41	M41	W16X26	30												Lateral
42	M42	W16X26	21.5												Lateral
43	M43	W16X26	21.5												Lateral
44	M44	W16X26	30												Lateral
45	M45	W16X26	21.5												Lateral
46	M46	W16X26	21.5												Lateral
47	M47	W16X26	30												Lateral
48	M48	W16X26	21.5												Lateral
49	M49	W16X26	21.5												Lateral
50	M50	W16X26	30												Lateral
51	M51	W16X26	21.5												Lateral
52	M52	W16X26	21.5												Lateral
53	M53	W16X26	30												Lateral
54	M54	W16X26	21.5												Lateral
55	M55	W16X26	21.5												Lateral
56	M56	W16X26	30												Lateral
57	M57	W16X26	21.5												Lateral
58	M58	W16X26	21.5												Lateral
59	M59	W16X26	30												Lateral
60	M60	W16X26	21.5												Lateral
61	M61	W16X26	21.5			5	10.75								Lateral
62	M62	W16X31	30			5	15								Lateral
63	M63	W16X26	21.5			5	10.75								Lateral
64	M64	W16X26	24.5			5	12.25								Lateral
65	M65	W16X26	25			5	12.5								Lateral
66	M66	W16X26	25			5	12.5								Lateral
67	M67	W16X26	15			5	7.5								Lateral
68	M68	W16X26	25			5	12.5								Lateral
69	M69	W16X26	25			5	12.5								Lateral
70	M70	W16X26	25			5	12.5								Lateral
71	M71	W16X26	22.5			5	11.25								Lateral
72	M72	W16X26	24.5			5	12.25								Lateral
73	M73	W16X26	25			5	12.5								Lateral
74	M74	W16X26	25			5	12.5								Lateral
75	M75	W16X26	15			5	7.5								Lateral
76	M76a	W16X26	12.5												Lateral
77	M77	W16X26	25			5	12.5								Lateral
78	M78	W16X26	25			5	12.5								Lateral
79	M79	W16X26	22.5			5	11.25								Lateral
80	M80	W16X26	24.5			5	12.25								Lateral
81	M81	W16X26	25			5	12.5								Lateral
82	M82	W16X26	25			5	12.5								Lateral
83	M83	W16X26	15			5	7.5								Lateral
84	M84a	W16X26	12.5												Lateral
85	M85	W16X26	25			5	12.5								Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Lengt...	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	Kyy	Kzz	Cm-yy	Cm-zz	Cb	y sw...	z sw...	Function
86	M86	W16X26	25			5	12.5								Lateral
87	M87	W16X26	22.5			5	11.25								Lateral
88	M88	W16X26	24.5			5	12.25								Lateral
89	M89	W16X26	25			5	12.5								Lateral
90	M90	W16X26	25			5	12.5								Lateral
91	M91	W16X26	15			5	7.5								Lateral
92	M92	W16X26	25			5	12.5								Lateral
93	M93	W16X26	25			5	12.5								Lateral
94	M94	W16X26	25			5	12.5								Lateral
95	M95	W16X26	22.5			5	11.25								Lateral
96	M96	HSS4.5...	26.505												Lateral
97	M97	HSS5X5...	28.991												Lateral
98	M98	HSS4.5...	26.505												Lateral
99	M99	HSS4.5...	26.505												Lateral
100	M102	HSS4X4...	19.912												Lateral
101	M103	HSS4X4...	19.912												Lateral
102	M105	HSS4X4...	19.912												Lateral
103	M106	HSS4X4...	19.912												Lateral
104	M107	HSS5X5...	28.991												Lateral
105	M84b	W16X26	12.5												Lateral
106	M76b	W16X26	12.5												Lateral
107	M100	HSS4.5...	26.505												Lateral

Joint Loads and Enforced Displacements (BLC 6 : Seismic Trans)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N1000	L	Y	-47.78

Joint Loads and Enforced Displacements (BLC 7 : Seismic Long)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N1000	L	X	-47.78

Member Point Loads

Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
No Data to Print ...			

Member Distributed Loads (BLC 2 : Roof Live)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,d...	Start Location[ft,%]	End Location[ft,%]
1	M95	Z	-.215	-.215	0	0
2	M94	Z	-.215	-.215	0	0
3	M93	Z	-.215	-.215	0	0
4	M92	Z	-.215	-.215	0	0
5	M91	Z	-.215	-.215	0	0
6	M90	Z	-.215	-.215	0	0
7	M89	Z	-.215	-.215	0	0
8	M88	Z	-.215	-.215	0	0
9	M80	Z	-.515	-.515	0	0
10	M81	Z	-.515	-.515	0	0
11	M82	Z	-.515	-.515	0	0

Member Distributed Loads (BLC 2 : Roof Live) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,d...	Start Location[ft,%]	End Location[ft,%]
12	M83	Z	-.515	-.515	0	0
13	M84a	Z	-.515	-.515	0	0
14	M85	Z	-.515	-.515	0	0
15	M86	Z	-.515	-.515	0	0
16	M87	Z	-.515	-.515	0	0
17	M72	Z	-.515	-.515	0	0
18	M73	Z	-.515	-.515	0	0
19	M74	Z	-.515	-.515	0	0
20	M75	Z	-.515	-.515	0	0
21	M76a	Z	-.515	-.515	0	0
22	M77	Z	-.515	-.515	0	0
23	M78	Z	-.515	-.515	0	0
24	M79	Z	-.515	-.515	0	0
25	M71	Z	-.215	-.215	0	0
26	M70	Z	-.215	-.215	0	0
27	M69	Z	-.215	-.215	0	0
28	M68	Z	-.215	-.215	0	0
29	M67	Z	-.215	-.215	0	0
30	M66	Z	-.215	-.215	0	0
31	M65	Z	-.215	-.215	0	0
32	M64	Z	-.215	-.215	0	0
33	M84b	Z	-.515	-.515	0	0
34	M38	Z	-.215	-.215	0	0
35	M37	Z	-.215	-.215	0	0
36	M61	Z	-.215	-.215	0	0
37	M62	Z	-.215	-.215	0	0
38	M63	Z	-.215	-.215	0	0
39	M39	Z	-.215	-.215	0	0
40	M76b	Z	-.515	-.515	0	0

Member Distributed Loads (BLC 3 : Superimposed Dead)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,d...	Start Location[ft,%]	End Location[ft,%]
1	M61	Z	-.256	-.256	0	0
2	M62	Z	-.256	-.256	0	0
3	M37	Z	-.256	-.256	0	0
4	M38	Z	-.256	-.256	0	0
5	M39	Z	-.256	-.256	0	0
6	M63	Z	-.256	-.256	0	0
7	M95	Z	-.256	-.256	0	0
8	M94	Z	-.256	-.256	0	0
9	M93	Z	-.256	-.256	0	0
10	M92	Z	-.256	-.256	0	0
11	M91	Z	-.256	-.256	0	0
12	M90	Z	-.256	-.256	0	0
13	M89	Z	-.256	-.256	0	0
14	M88	Z	-.256	-.256	0	0
15	M80	Z	-.613	-.613	0	0
16	M81	Z	-.613	-.613	0	0
17	M82	Z	-.613	-.613	0	0
18	M83	Z	-.613	-.613	0	0
19	M84a	Z	-.613	-.613	0	0
20	M85	Z	-.613	-.613	0	0

Member Distributed Loads (BLC 3 : Superimposed Dead) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,d...	Start Location[ft,%]	End Location[ft,%]
21	M86	Z	-.613	-.613	0	0
22	M87	Z	-.613	-.613	0	0
23	M72	Z	-.613	-.613	0	0
24	M73	Z	-.613	-.613	0	0
25	M74	Z	-.613	-.613	0	0
26	M75	Z	-.613	-.613	0	0
27	M76a	Z	-.613	-.613	0	0
28	M77	Z	-.613	-.613	0	0
29	M78	Z	-.613	-.613	0	0
30	M79	Z	-.613	-.613	0	0
31	M71	Z	-.256	-.256	0	0
32	M70	Z	-.256	-.256	0	0
33	M69	Z	-.256	-.256	0	0
34	M68	Z	-.256	-.256	0	0
35	M67	Z	-.256	-.256	0	0
36	M66	Z	-.256	-.256	0	0
37	M65	Z	-.256	-.256	0	0
38	M64	Z	-.256	-.256	0	0
39	M76b	Z	-.613	-.613	0	0
40	M84b	Z	-.613	-.613	0	0

Member Distributed Loads (BLC 4 : Wind Trans)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,d...	Start Location[ft,%]	End Location[ft,%]
1	M95	Y	.11	.11	0	0
2	M94	Y	.11	.11	0	0
3	M93	Y	.11	.11	0	0
4	M92	Y	.11	.11	0	0
5	M91	Y	.11	.11	0	0
6	M90	Y	.11	.11	0	0
7	M89	Y	.11	.11	0	0
8	M88	Y	.11	.11	0	0

Member Distributed Loads (BLC 5 : Wind Long)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,d...	Start Location[ft,%]	End Location[ft,%]
1	M61	X	-.09	-.09	0	0
2	M62	X	-.09	-.09	0	0
3	M63	X	-.09	-.09	0	0

Member Distributed Loads (BLC 8 : Wind Trans Uplift)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,d...	Start Location[ft,%]	End Location[ft,%]
1	M87	Z	.38	.38	0	0
2	M86	Z	.38	.38	0	0
3	M85	Z	.38	.38	0	0
4	M84b	Z	.38	.38	0	0
5	M84a	Z	.38	.38	0	0
6	M83	Z	.38	.38	0	0
7	M82	Z	.38	.38	0	0
8	M81	Z	.38	.38	0	0
9	M80	Z	.38	.38	0	0
10	M79	Z	.38	.38	0	0
11	M78	Z	.38	.38	0	0

Member Distributed Loads (BLC 8 : Wind Trans Uplift) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,d...	Start Location[ft,%]	End Location[ft,%]
12	M77	Z	.38	.38	0	0
13	M76b	Z	.38	.38	0	0
14	M76a	Z	.38	.38	0	0
15	M75	Z	.38	.38	0	0
16	M74	Z	.38	.38	0	0
17	M73	Z	.38	.38	0	0
18	M72	Z	.38	.38	0	0
19	M63	Z	.25	.25	0	0
20	M62	Z	.25	.25	0	0
21	M61	Z	.25	.25	0	0
22	M95	Z	.25	.25	0	0
23	M94	Z	.25	.25	0	0
24	M93	Z	.25	.25	0	0
25	M92	Z	.25	.25	0	0
26	M91	Z	.25	.25	0	0
27	M90	Z	.25	.25	0	0
28	M89	Z	.25	.25	0	0
29	M88	Z	.25	.25	0	0
30	M37	Z	.25	.25	0	0
31	M38	Z	.25	.25	0	0
32	M39	Z	.25	.25	0	0
33	M64	Z	.25	.25	0	0
34	M65	Z	.25	.25	0	0
35	M66	Z	.25	.25	0	0
36	M67	Z	.25	.25	0	0
37	M68	Z	.25	.25	0	0
38	M69	Z	.25	.25	0	0
39	M70	Z	.25	.25	0	0
40	M71	Z	.25	.25	0	0

Member Distributed Loads (BLC 9 : Wind Long Uplift)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,d...	Start Location[ft,%]	End Location[ft,%]
1	M94	Z	.25	.25	0	0
2	M95	Z	.25	.25	0	0
3	M61	Z	.25	.25	0	0
4	M62	Z	.25	.25	0	0
5	M63	Z	.25	.25	0	0
6	M37	Z	.25	.25	0	0
7	M38	Z	.25	.25	0	0
8	M39	Z	.25	.25	0	0
9	M64	Z	.25	.25	0	0
10	M88	Z	.25	.25	0	0
11	M89	Z	.25	.25	0	0
12	M90	Z	.25	.25	0	0
13	M91	Z	.25	.25	0	0
14	M92	Z	.25	.25	0	0
15	M93	Z	.25	.25	0	0
16	M71	Z	.25	.25	0	0
17	M70	Z	.25	.25	0	0
18	M69	Z	.25	.25	0	0
19	M68	Z	.25	.25	0	0
20	M67	Z	.25	.25	0	0

Member Distributed Loads (BLC 9 : Wind Long Uplift) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,d...	Start Location[ft,%]	End Location[ft,%]
21	M66	Z	.25	.25	0	0
22	M65	Z	.25	.25	0	0
23	M87	Z	.38	.38	0	0
24	M86	Z	.38	.38	0	0
25	M85	Z	.38	.38	0	0
26	M84b	Z	.38	.38	0	0
27	M84a	Z	.38	.38	0	0
28	M83	Z	.38	.38	0	0
29	M82	Z	.38	.38	0	0
30	M81	Z	.38	.38	0	0
31	M80	Z	.38	.38	0	0
32	M79	Z	.38	.38	0	0
33	M78	Z	.38	.38	0	0
34	M77	Z	.38	.38	0	0
35	M76b	Z	.38	.38	0	0
36	M76a	Z	.38	.38	0	0
37	M75	Z	.38	.38	0	0
38	M74	Z	.38	.38	0	0
39	M73	Z	.38	.38	0	0
40	M72	Z	.38	.38	0	0

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self Weight	DL			-1					
2	Roof Live	RLL						40		
3	Superimposed Dead	DL						40		
4	Wind Trans	WL						8		
5	Wind Long	WL						3		
6	Seismic Trans	EL				1				
7	Seismic Long	EL				1				
8	Wind Trans Uplift	WL						40		
9	Wind Long Uplift	WL						40		

Load Combinations

	Description	Sol...	PDelta	SR...	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	LRFD16-1	Yes	Y		DL	1.4														
2	LRFD16-2	Yes	Y		DL	1.2	RLL	.5												
3	LRFD16-3a	Yes	Y		DL	1.2	RLL	1.6												
4	LRFD16-3b.1	Yes	Y		DL	1.2	RLL	1.6	4	.8	8	.8								
5	LRFD 16-3b.2	Yes	Y		DL	1.2	RLL	1.6	5	.8	9	.8								
6	LRFD 16-4.1	Yes	Y		DL	1.2	RLL	.5	4	1.6	8	1.6								
7	LRFD 16-4.2	Yes	Y		DL	1.2	RLL	.5	5	1.6	9	1.6								
8	LRFD 16-5.1	Yes	Y		DL	1.2	RLL	.2	6	1										
9	LRFD 16-5.2	Yes	Y		DL	1.2	RLL	.2	7	1										
10	LRFD 16-6.1	Yes	Y		DL	.9	4	1.6	8	1.6										
11	LRFD 16-6.2	Yes	Y		DL	.9	5	1.6	9	1.6										
12	LRFD 16-7.1	Yes	Y		DL	.9	6	1												
13	LRFD 16-7.2	Yes	Y		DL	.9	7	1												
14	LRFD16-3b.1 (- Lat...	Yes	Y		DL	1.2	RLL	1.6	4	-.8	8	.8								
15	LRFD 16-3b.2 (- Lat...	Yes	Y		DL	1.2	RLL	1.6	5	-.8	9	.8								

Load Combinations (Continued)

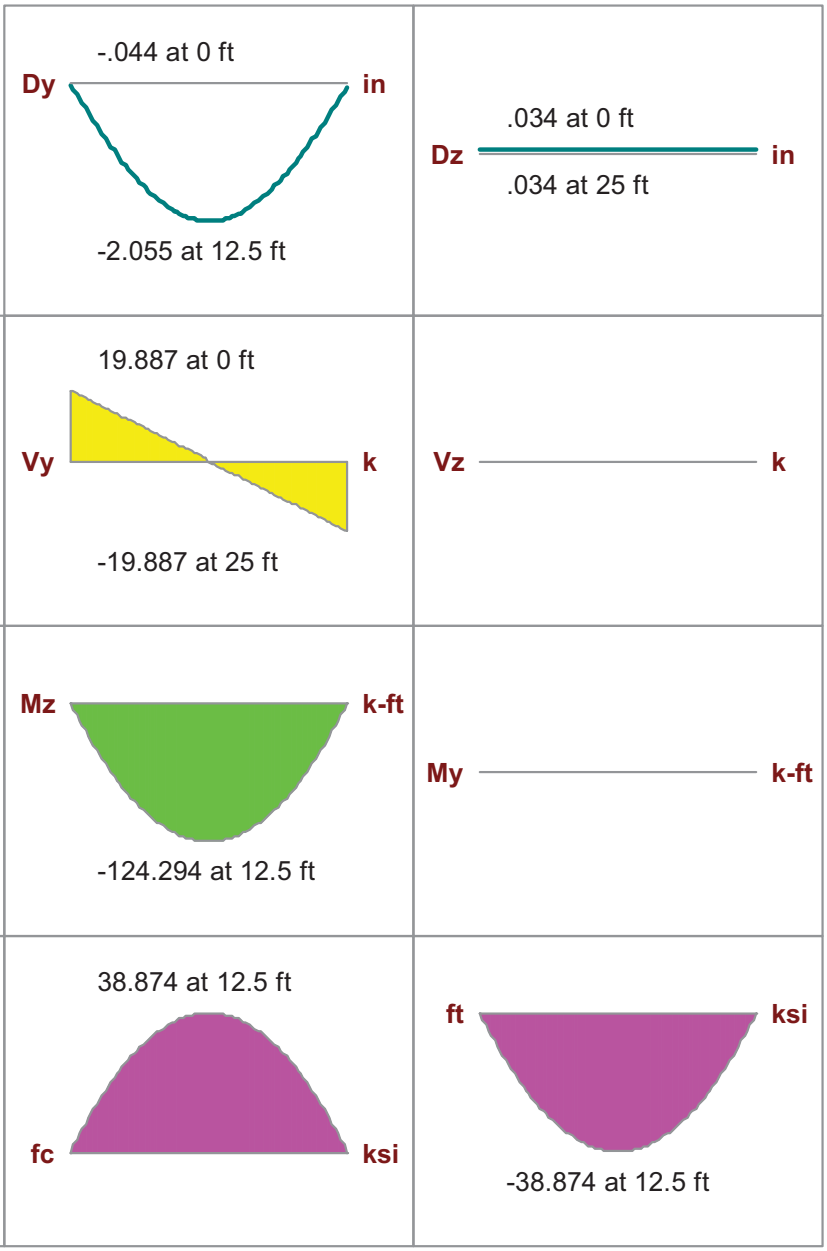
	Description	Sol...	PDelta	SR...	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
16	LRFD 16-4.1 (- Late...	Yes	Y		DL	1.2	RLL	.5	4	-1.6	8	1.6								
17	LRFD 16-4.2 (- Late...	Yes	Y		DL	1.2	RLL	.5	5	-1.6	9	1.6								
18	LRFD 16-5.1 (- Late...	Yes	Y		DL	1.2	RLL	.2	6	-1										
19	LRFD 16-5.2 (- Late...	Yes	Y		DL	1.2	RLL	.2	7	-1										
20	LRFD 16-6.1 (- Late...	Yes	Y		DL	.9	4	-1.6	8	1.6										
21	LRFD 16-6.2 (- Late...	Yes	Y		DL	.9	5	-1.6	9	1.6										
22	LRFD 16-7.1 (- Late...	Yes	Y		DL	.9	6	-1												
23	LRFD 16-7.2 (- Late...	Yes	Y		DL	.9	7	-1												
24	ASD 16-10	Yes			DL	1	RLL	1												
25	ASD 16-12a.1	Yes			DL	1	4	1	8	1										
26	ASD 16-12a.2	Yes			DL	1	5	1	9	1										
27	ASD 16-12b.1	Yes			DL	1	6	.7												
28	ASD 16-12b.2	Yes			DL	1	7	.7												
29	ASD 16-13a.1	Yes			DL	1	RLL	.75	6	.525										
30	ASD 16-13a.2	Yes			DL	1	RLL	.75	7	.525										
31	ASD 16-13b.1	Yes			DL	1	RLL	.75	4	.75	8	.75								
32	ASD 16-13b.2	Yes			DL	1	RLL	.75	5	.75	9	.75								
33	ASD 16-14.1	Yes			DL	.6	4	1	8	1										
34	ASD 16-14.2	Yes			DL	.6	5	1	9	1										
35	ASD 16-15.1	Yes			DL	.6	6	.7												
36	ASD 16-15.2	Yes			DL	.6	7	.7												
37	ASD 16-12a.1 (- Lat...	Yes			DL	1	4	-1	8	1										
38	ASD 16-12a.2 (- Lat...	Yes			DL	1	5	-1	9	1										
39	ASD 16-12b.1 (- Lat...	Yes			DL	1	6	-.7												
40	ASD 16-12b.2 (- Lat...	Yes			DL	1	7	-.7												
41	ASD 16-13a.1 (- Lat...	Yes			DL	1	RLL	.75	6	-.525										
42	ASD 16-13a.2 (- Lat...	Yes			DL	1	RLL	.75	7	-.525										
43	ASD 16-13b.1 (- Lat...	Yes			DL	1	RLL	.75	4	-.75	8	.75								
44	ASD 16-13b.2 (- Lat...	Yes			DL	1	RLL	.75	5	-.75	9	.75								
45	ASD 16-14.1 (- Late...	Yes			DL	.6	4	-1	8	1										
46	ASD 16-14.2 (- Late...	Yes			DL	.6	5	-1	9	1										
47	ASD 16-15.1 (- Late...	Yes			DL	.6	6	-.7												
48	ASD 16-15.2 (- Late...	Yes			DL	.6	7	-.7												
49	Self Weight	Yes	Y		1	1														
50	Roof Live	Yes	Y		2	1														
51	Superimposed Dead	Yes	Y		3	1														
52	Wind Trans	Yes	Y		4	1														
53	Wind Long	Yes	Y		5	1														
54	Seismic Trans	Yes	Y		6	1														
55	Seismic Long	Yes	Y		7	1														
56	Wind Trans (-)	Yes	Y		4	-1														
57	Wind Long (-)	Yes	Y		5	-1														
58	Seismic Trans (-)	Yes	Y		6	-1														
59	Seismic Long (-)	Yes	Y		7	-1														
60	Wind Trans Uplift	Yes	Y		8	1														
61	Wind Long Uplift	Yes	Y		9	1														

Member Strength and Deflection Check

CIC – Detachment 24; Ft. Bliss, Texas

Beam: ***M85***

Shape: **W16X26**
Material: **A992**
Length: **25 ft**
I Joint: **N24**
J Joint: **N25**
LC 3: LRFD16-3a
Code Check: **0.795 (bending)**
Report Based On 97 Sections



AISC 13th(360-05): LRFD Code Check

Direct Analysis Method

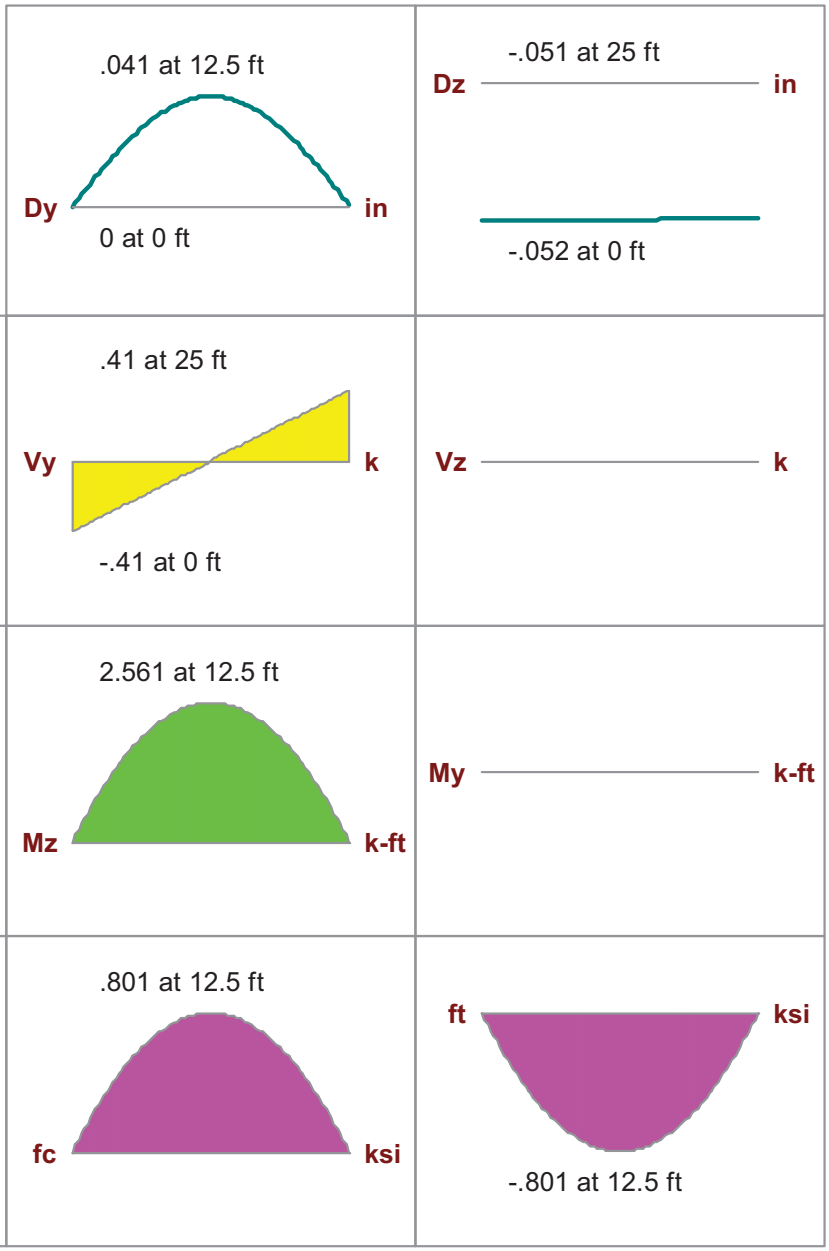
Max Bending Check	**0.795**	Max Shear Check	**0.190 (y)**	
Location	**12.5 ft**	Location	**0 ft**	
Equation	**H1-1b**	Max Defl Ratio	**L/150**	
Bending Flange	**Compact**	Compression Flange	**Non-Slender**	**Qs=1**
Bending Web	**Compact**	Compression Web	**Slender**	**Qa=1**

			y-y	z-z
Fy	**50 ksi**	Lb	**25 ft**	**25 ft**
phi*Pnc	**24.072 k**	KL/r	**268.468**	**47.92**
phi*Pnt	**345.6 k**	Sway	**No**	**No**
phi*Mny	**20.55 k-ft**			
phi*Mnz	**156.317 k-ft**	L Comp Flange	**5 ft**	
phi*Vny	**104.56 k**	Torque Length	**NC**	
phi*Vnz	**102.465 k**	Tau_b	**1**	
Cb	**1**			

Maximum Uplift Sample

Beam: ***M85***

Shape: **W16X26**
Material: **A992**
Length: **25 ft**
I Joint: **N24**
J Joint: **N25**
LC 10: LRFD 16-6.1
Code Check: **0.031 (bending)**
Report Based On 97 Sections



AISC 13th(360-05): LRFD Code Check

Direct Analysis Method

Max Bending Check	**0.031**	Max Shear Check	**0.004 (y)**	
Location	**12.5 ft**	Location	**25 ft**	
Equation	**H1-1b**	Max Defl Ratio	**L/7272**	
Bending Flange	**Compact**	Compression Flange	**Non-Slender**	**Qs=1**
Bending Web	**Compact**	Compression Web	**Slender**	**Qa=1**

Fy	**50 ksi**
phi*Pnc	**24.072 k**
phi*Pnt	**345.6 k**
phi*Mny	**20.55 k-ft**
phi*Mnz	**83.213 k-ft**
phi*Vny	**104.56 k**
phi*Vnz	**102.465 k**
Cb	**1**

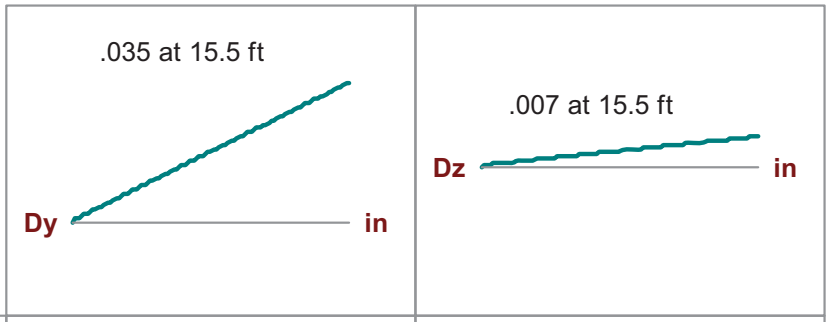
	y-y	z-z
Lb	**25 ft**	**25 ft**
KL/r	**268.468**	**47.92**
Sway	**No**	**No**

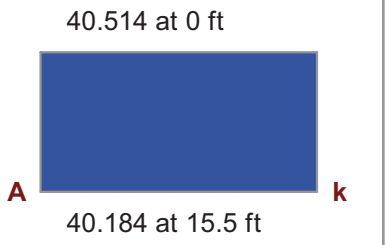
L Comp Flange	**12.5 ft**
Torque Length	**NC**
Tau_b	**1**

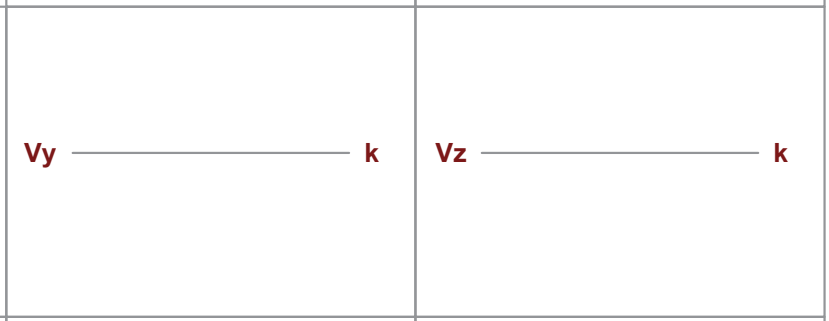
Maximum Compression Sample - Gravity Column

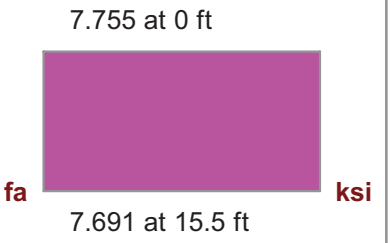
Column: ***M7***

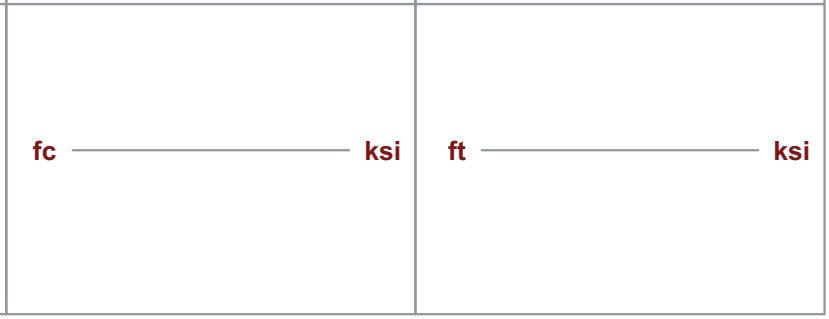
Shape: **HSS6X6X4**
Material: **A500 Gr.46**
Length: **15.5 ft**
I Joint: **N49**
J Joint: **N20**
LC 3: LRFD16-3a
Code Check: **0.287 (bending)**
Report Based On 97 Sections











AISC 13th(360-05): LRFD Code Check

Direct Analysis Method

Max Bending Check	**0.287**	Max Shear Check	**0.000 (y)**
Location	**0 ft**	Location	**0 ft**
Equation	**H1-1a**	Max Defl Ratio	**L/10000**
Bending Flange	**Compact**	Compression Flange	**Non-Slender**
Bending Web	**Compact**	Compression Web	**Non-Slender**

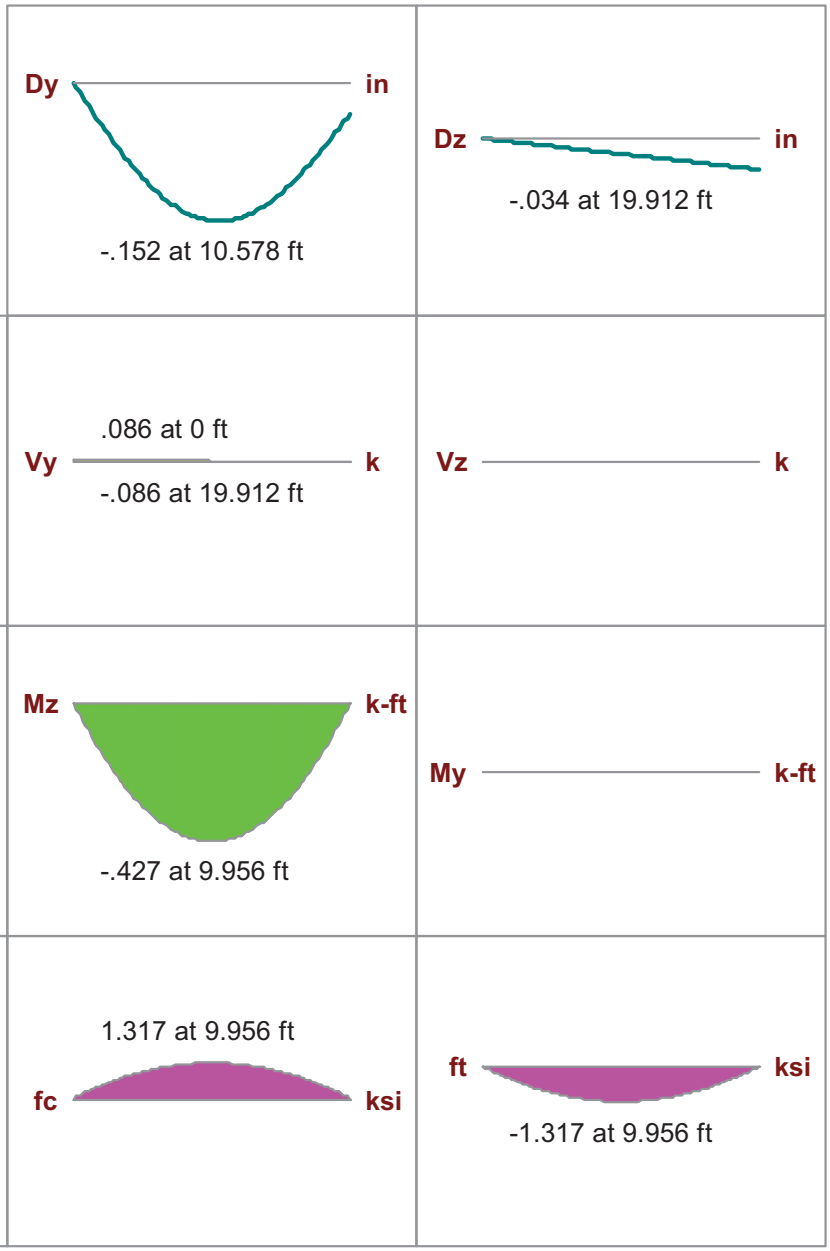
Fy	**46 ksi**
phi*Pnc	**141.326 k**
phi*Pnt	**216.297 k**
phi*Mny	**38.625 k-ft**
phi*Mnz	**38.625 k-ft**
phi*Vny	**61.247 k**
phi*Vnz	**61.247 k**
phi*Tn	**31.918 k-ft**
Cb	**1**

	y-y	z-z
Lb	**15.5 ft**	**15.5 ft**
KL/r	**79.541**	**79.541**
Sway	**No**	**No**

L Comp Flange	**15.5 ft**
Torque Length	**NC**
Tau_b	**1**

VBrace: ***M103***

Shape: **HSS4X4X4**
Material: **A500 Gr.46**
Length: **19.912 ft**
I Joint: **N79**
J Joint: **N14A**
LC 3: LRFD16-3a
Code Check: **0.588 (bending)**
Report Based On 97 Sections



AISC 13th(360-05): LRFD Code Check

Direct Analysis Method

Max Bending Check	**0.588**	Max Shear Check	**0.002 (y)**
Location	**9.126 ft**	Location	**19.912 ft**
Equation	**H1-1a**	Max Defl Ratio	**L/1769**
Bending Flange	**Compact**	Compression Flange	**Non-Slender**
Bending Web	**Compact**	Compression Web	**Non-Slender**

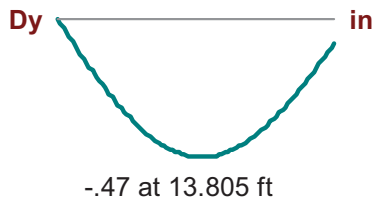
Fy	**46 ksi**
phi*Pnc	**30.816 k**
phi*Pnt	**139.293 k**
phi*Mny	**16.16 k-ft**
phi*Mnz	**16.16 k-ft**
phi*Vny	**38.146 k**
phi*Vnz	**38.146 k**
phi*Tn	**13.562 k-ft**
Cb	**1.136**

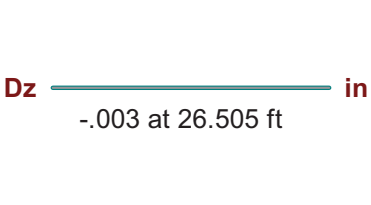
	y-y	z-z
Lb	**19.912 ft**	**19.912 ft**
KL/r	**157.053**	**157.053**
Sway	**No**	**No**

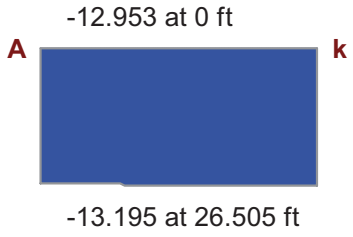
L Comp Flange	**19.912 ft**
Torque Length	**NC**
Tau_b	**1**

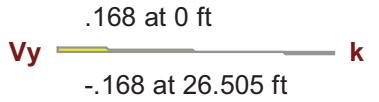
VBrace: ***M100***

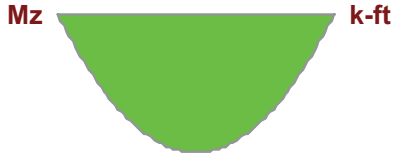
Shape: **HSS4.5X4.5X4**
Material: **A500 Gr.46**
Length: **26.505 ft**
I Joint: **N101**
J Joint: **N18**
LC 8: LRFD 16-5.1
Code Check: **0.095 (bending)**
Report Based On 97 Sections

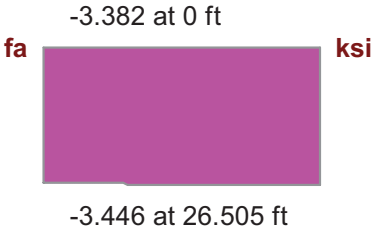


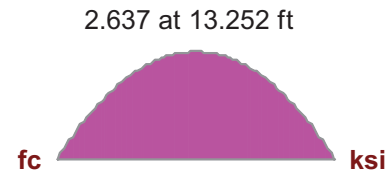


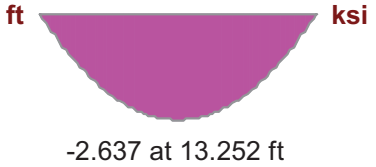












AISC 13th(360-05): LRFD Code Check

Direct Analysis Method

Max Bending Check	**0.095**	Max Shear Check	**0.004 (y)**
Location	**13.252 ft**	Location	**0 ft**
Equation	**H1-1b**	Max Defl Ratio	**L/747**
Bending Flange	**Compact**	Compression Flange	**Non-Slender**
Bending Web	**Compact**	Compression Web	**Non-Slender**

Fy	**46 ksi**
phi*Pnc	**25.47 k**
phi*Pnt	**158.544 k**
phi*Mny	**20.874 k-ft**
phi*Mnz	**20.874 k-ft**
phi*Vny	**43.921 k**
phi*Vnz	**43.921 k**
phi*Tn	**17.429 k-ft**
Cb	**1.136**

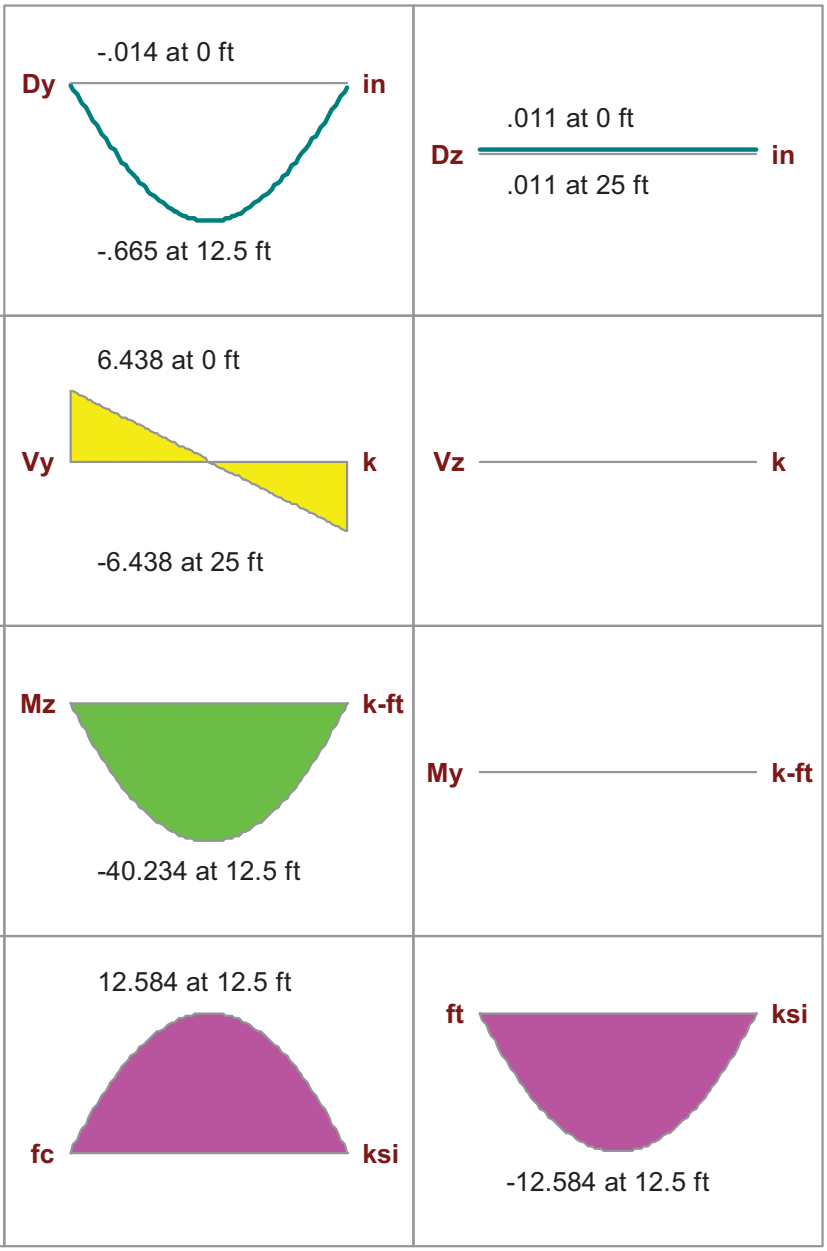
	y-y	z-z
Lb	**26.505 ft**	**26.505 ft**
KL/r	**184.302**	**184.302**
Sway	**No**	**No**

L Comp Flange	**26.505 ft**
Torque Length	**NC**
Tau_b	**1**

Deflection Check Sample

Beam: ***M85***

Shape: **W16X26**
Material: **A992**
Length: **25 ft**
I Joint: **N24**
J Joint: **N25**
LC 28: Roof Live
Code Check: **No Calc**
Report Based On 97 Sections



AISC 13th(360-05): LRFD Code Check

Direct Analysis Method

- This load combination was not selected for steel design -

Max Defl Ratio **L/463** Deflection is ok

Member AISC 13th(360-05): LRFD Steel Code Checks (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[..	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
212	2	M84b	W16X26	.118	0	.076	0	y	96.289	345.6	20.55	158.899	1.91	H1-1b
213	2	M76b	W16X26	.118	0	.076	0	y	96.289	345.6	20.55	159.915	1.922	H1-1b
214	2	M100	HSS4.5X4....	.074	12.976	.004	26.505	y	25.47	158.544	20.874	20.874	1.136	H1-1b
215	3	M1	HSS6X6X4	.057	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
216	3	M2	HSS6X6X4	.262	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
217	3	M3	HSS6X6X4	.265	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
218	3	M4	HSS6X6X4	.057	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
219	3	M5	HSS6X6X4	.059	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
220	3	M6	HSS6X6X4	.287	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
221	3	M7	HSS6X6X4	.287	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
222	3	M8	HSS6X6X4	.059	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
223	3	M9	HSS6X6X4	.063	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
224	3	M10	HSS6X6X4	.289	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
225	3	M11	HSS6X6X4	.289	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
226	3	M12	HSS6X6X4	.063	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
227	3	M13	HSS6X6X4	.051	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
228	3	M14	HSS6X6X4	.233	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
229	3	M15	HSS6X6X4	.233	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
230	3	M16	HSS6X6X4	.051	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
231	3	M17	HSS6X6X4	.051	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
232	3	M18	HSS6X6X4	.079	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
233	3	M19	HSS6X6X4	.073	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
234	3	M20	HSS6X6X4	.051	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
235	3	M21	HSS6X6X4	.063	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
236	3	M22	HSS6X6X4	.207	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
237	3	M23	HSS6X6X4	.203	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
238	3	M24	HSS6X6X4	.063	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
239	3	M25	HSS6X6X4	.063	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
240	3	M26	HSS6X6X4	.289	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
241	3	M27	HSS6X6X4	.289	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
242	3	M28	HSS6X6X4	.063	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
243	3	M29	HSS6X6X4	.060	0	.000	0	z	141.326	216.297	38.625	38.625	1	H1-1b
244	3	M30	HSS6X6X4	.270	0	.000	0	z	141.326	216.297	38.625	38.625	1	H1-1a
245	3	M31	HSS6X6X4	.275	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
246	3	M32	HSS6X6X4	.060	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
247	3	M33	HSS6X6X4	.054	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
248	3	M34	HSS6X6X4	.254	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
249	3	M35	HSS6X6X4	.254	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
250	3	M36	HSS6X6X4	.054	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
251	3	M37	W16X26	.252	10.75	.070	0	y	32.548	345.6	20.55	156.317	1	H1-1b
252	3	M38	W16X31	.400	15	.088	0	y	21.615	410.4	26.363	193.567	1	H1-1b
253	3	M39	W16X26	.252	10.75	.070	0	y	32.548	345.6	20.55	156.317	1	H1-1b
254	3	M40	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
255	3	M41	W16X26	.140	15	.004	0	y	16.717	345.6	20.55	25.271	1.136	H1-1b
256	3	M42	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
257	3	M43	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
258	3	M44	W16X26	.140	15	.004	0	y	16.717	345.6	20.55	25.271	1.136	H1-1b
259	3	M45	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
260	3	M46	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
261	3	M47	W16X26	.140	15	.004	0	y	16.717	345.6	20.55	25.271	1.136	H1-1b
262	3	M48	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
263	3	M49	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
264	3	M50	W16X26	.140	15	.004	0	y	16.717	345.6	20.55	25.271	1.136	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[..	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
265	3	M51	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
266	3	M52	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
267	3	M53	W16X26	.140	15	.004	0	y	16.717	345.6	20.55	25.271	1.136	H1-1b
268	3	M54	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
269	3	M55	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
270	3	M56	W16X26	.140	15	.004	0	y	16.717	345.6	20.55	25.271	1.136	H1-1b
271	3	M57	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
272	3	M58	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
273	3	M59	W16X26	.140	15	.004	0	y	16.717	345.6	20.55	25.271	1.136	H1-1b
274	3	M60	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
275	3	M61	W16X26	.252	10.75	.070	0	y	32.548	345.6	20.55	156.317	1	H1-1b
276	3	M62	W16X31	.400	15	.088	0	y	21.615	410.4	26.363	193.567	1	H1-1b
277	3	M63	W16X26	.252	10.75	.070	0	y	32.548	345.6	20.55	156.317	1	H1-1b
278	3	M64	W16X26	.328	12.25	.080	0	y	25.065	345.6	20.55	156.317	1	H1-1b
279	3	M65	W16X26	.341	12.5	.082	0	y	24.072	345.6	20.55	156.317	1	H1-1b
280	3	M66	W16X26	.341	12.5	.082	0	y	24.072	345.6	20.55	156.317	1	H1-1b
281	3	M67	W16X26	.123	7.5	.049	0	y	66.867	345.6	20.55	156.317	1	H1-1b
282	3	M68	W16X26	.341	12.5	.082	0	y	24.072	345.6	20.55	156.317	1	H1-1b
283	3	M69	W16X26	.341	12.5	.082	0	y	24.072	345.6	20.55	156.317	1	H1-1b
284	3	M70	W16X26	.341	12.5	.082	0	y	24.072	345.6	20.55	156.317	1	H1-1b
285	3	M71	W16X26	.276	11.25	.073	22.5	y	29.719	345.6	20.55	156.317	1	H1-1b
286	3	M72	W16X26	.764	12.25	.186	0	y	25.065	345.6	20.55	156.317	1	H1-1b
287	3	M73	W16X26	.795	12.5	.190	0	y	24.072	345.6	20.55	156.317	1	H1-1b
288	3	M74	W16X26	.795	12.5	.190	0	y	24.072	345.6	20.55	156.317	1	H1-1b
289	3	M75	W16X26	.286	7.5	.114	0	y	66.867	345.6	20.55	156.317	1	H1-1b
290	3	M76a	W16X26	.184	12.5	.118	12.5	y	96.289	345.6	20.55	159.584	1.918	H1-1b
291	3	M77	W16X26	.795	12.5	.190	0	y	24.072	345.6	20.55	156.317	1	H1-1b
292	3	M78	W16X26	.795	12.5	.190	0	y	24.072	345.6	20.55	156.317	1	H1-1b
293	3	M79	W16X26	.644	11.25	.171	0	y	29.719	345.6	20.55	156.317	1	H1-1b
294	3	M80	W16X26	.764	12.25	.186	0	y	25.065	345.6	20.55	156.317	1	H1-1b
295	3	M81	W16X26	.795	12.5	.190	0	y	24.072	345.6	20.55	156.317	1	H1-1b
296	3	M82	W16X26	.795	12.5	.190	0	y	24.072	345.6	20.55	156.317	1	H1-1b
297	3	M83	W16X26	.286	7.5	.114	0	y	66.867	345.6	20.55	156.317	1	H1-1b
298	3	M84a	W16X26	.184	12.5	.117	12.5	y	96.289	345.6	20.55	158.654	1.907	H1-1b
299	3	M85	W16X26	.795	12.5	.190	0	y	24.072	345.6	20.55	156.317	1	H1-1b
300	3	M86	W16X26	.795	12.5	.190	0	y	24.072	345.6	20.55	156.317	1	H1-1b
301	3	M87	W16X26	.644	11.25	.171	0	y	29.719	345.6	20.55	156.317	1	H1-1b
302	3	M88	W16X26	.328	12.25	.080	0	y	25.065	345.6	20.55	156.317	1	H1-1b
303	3	M89	W16X26	.341	12.5	.082	0	y	24.072	345.6	20.55	156.317	1	H1-1b
304	3	M90	W16X26	.341	12.5	.082	0	y	24.072	345.6	20.55	156.317	1	H1-1b
305	3	M91	W16X26	.123	7.5	.049	0	y	66.867	345.6	20.55	156.317	1	H1-1b
306	3	M92	W16X26	.341	12.5	.082	0	y	24.072	345.6	20.55	156.317	1	H1-1b
307	3	M93	W16X26	.341	12.5	.082	0	y	24.072	345.6	20.55	156.317	1	H1-1b
308	3	M94	W16X26	.341	12.5	.082	0	y	24.072	345.6	20.55	156.317	1	H1-1b
309	3	M95	W16X26	.276	11.25	.073	22.5	y	29.719	345.6	20.55	156.317	1	H1-1b
310	3	M96	HSS4.5X4....	.077	13.528	.004	26.505	y	25.47	158.544	20.874	20.874	1.136	H1-1b
311	3	M97	HSS5X5X4	.096	14.194	.004	0	y	29.859	177.795	26.189	26.189	1.136	H1-1b
312	3	M98	HSS4.5X4....	.061	13.252	.004	26.505	y	25.47	158.544	20.874	20.874	1.136	H1-1b
313	3	M99	HSS4.5X4....	.055	13.252	.004	0	y	25.47	158.544	20.874	20.874	1.136	H1-1b
314	3	M102	HSS4X4X4	.494	9.126	.002	0	y	30.816	139.293	16.16	16.16	1.136	H1-1a
315	3	M103	HSS4X4X4	.589	9.126	.002	0	y	30.816	139.293	16.16	16.16	1.136	H1-1a
316	3	M105	HSS4X4X4	.493	9.126	.002	0	y	30.816	139.293	16.16	16.16	1.136	H1-1a
317	3	M106	HSS4X4X4	.589	9.126	.002	0	y	30.816	139.293	16.16	16.16	1.136	H1-1a

Member AISC 13th(360-05): LRFD Steel Code Checks (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[..	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
318	3	M107	HSS5X5X4	.095	14.194	.004	0	y	29.859	177.795	26.189	26.189	1.136	H1-1b
319	3	M84b	W16X26	.184	0	.117	0	y	96.289	345.6	20.55	158.654	1.907	H1-1b
320	3	M76b	W16X26	.184	0	.118	0	y	96.289	345.6	20.55	159.584	1.918	H1-1b
321	3	M100	HSS4.5X4....	.085	12.976	.004	0	y	25.47	158.544	20.874	20.874	1.136	H1-1b
322	4	M1	HSS6X6X4	.040	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
323	4	M2	HSS6X6X4	.090	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
324	4	M3	HSS6X6X4	.202	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
325	4	M4	HSS6X6X4	.040	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
326	4	M5	HSS6X6X4	.043	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
327	4	M6	HSS6X6X4	.233	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
328	4	M7	HSS6X6X4	.233	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
329	4	M8	HSS6X6X4	.043	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
330	4	M9	HSS6X6X4	.045	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
331	4	M10	HSS6X6X4	.236	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
332	4	M11	HSS6X6X4	.236	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
333	4	M12	HSS6X6X4	.045	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
334	4	M13	HSS6X6X4	.037	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
335	4	M14	HSS6X6X4	.095	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
336	4	M15	HSS6X6X4	.095	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
337	4	M16	HSS6X6X4	.037	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
338	4	M17	HSS6X6X4	.037	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
339	4	M18	HSS6X6X4	.054	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
340	4	M19	HSS6X6X4	.060	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
341	4	M20	HSS6X6X4	.037	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
342	4	M21	HSS6X6X4	.045	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
343	4	M22	HSS6X6X4	.074	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
344	4	M23	HSS6X6X4	.083	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
345	4	M24	HSS6X6X4	.045	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
346	4	M25	HSS6X6X4	.045	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
347	4	M26	HSS6X6X4	.236	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
348	4	M27	HSS6X6X4	.236	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
349	4	M28	HSS6X6X4	.045	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
350	4	M29	HSS6X6X4	.043	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
351	4	M30	HSS6X6X4	.099	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
352	4	M31	HSS6X6X4	.224	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1a
353	4	M32	HSS6X6X4	.043	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
354	4	M33	HSS6X6X4	.039	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
355	4	M34	HSS6X6X4	.097	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
356	4	M35	HSS6X6X4	.097	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
357	4	M36	HSS6X6X4	.039	0	.000	0	y	141.326	216.297	38.625	38.625	1	H1-1b
358	4	M37	W16X26	.178	10.75	.050	0	y	32.548	345.6	20.55	156.317	1	H1-1b
359	4	M38	W16X31	.284	15	.062	0	y	21.615	410.4	26.363	193.567	1	H1-1b
360	4	M39	W16X26	.178	10.75	.050	0	y	32.548	345.6	20.55	156.317	1	H1-1b
361	4	M40	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
362	4	M41	W16X26	.140	15	.004	0	y	16.717	345.6	20.55	25.271	1.136	H1-1b
363	4	M42	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
364	4	M43	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
365	4	M44	W16X26	.140	15	.004	0	y	16.717	345.6	20.55	25.271	1.136	H1-1b
366	4	M45	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
367	4	M46	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
368	4	M47	W16X26	.140	15	.004	0	y	16.717	345.6	20.55	25.271	1.136	H1-1b
369	4	M48	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b
370	4	M49	W16X26	.045	10.75	.003	0	y	32.548	345.6	20.55	39.967	1.136	H1-1b

Base Reactions

CIC – Detachment 24; Ft. Bliss, Texas

LC	Load Case Description		Node	Fx	Fy	Fz	Note	CF Size
24	ASD 16-10	DL + RLL	N37	1.35 k	-0.75 k	13.49 k	Braced Frame	3.00
24	ASD 16-10	DL + RLL	N39	0.00 k	0.00 k	26.92 k		4.00
24	ASD 16-10	DL + RLL	N41	0.00 k	0.00 k	27.29 k		4.00
24	ASD 16-10	DL + RLL	N43	1.32 k	0.00 k	12.76 k	Braced Frame	3.00
24	ASD 16-10	DL + RLL	N45	0.00 k	0.00 k	12.22 k		3.00
24	ASD 16-10	DL + RLL	N47	0.00 k	0.00 k	29.51 k		4.00
24	ASD 16-10	DL + RLL	N49	0.00 k	0.00 k	29.51 k		4.00
24	ASD 16-10	DL + RLL	N51	0.00 k	0.00 k	12.24 k		3.00
24	ASD 16-10	DL + RLL	N53	0.00 k	0.00 k	12.99 k		3.00
24	ASD 16-10	DL + RLL	N55	0.00 k	0.00 k	29.80 k		4.00
24	ASD 16-10	DL + RLL	N57	0.00 k	0.00 k	29.80 k		4.00
24	ASD 16-10	DL + RLL	N59	0.00 k	0.00 k	12.99 k		3.00
24	ASD 16-10	DL + RLL	N61	0.00 k	0.00 k	10.50 k		3.00
24	ASD 16-10	DL + RLL	N63	0.00 k	0.00 k	24.03 k		3.50
24	ASD 16-10	DL + RLL	N65	0.00 k	0.00 k	24.03 k		3.50
24	ASD 16-10	DL + RLL	N67	0.00 k	0.00 k	10.50 k		3.00
24	ASD 16-10	DL + RLL	N69	0.00 k	1.38 k	9.68 k	Braced Frame	3.00
24	ASD 16-10	DL + RLL	N71	6.62 k	0.00 k	24.61 k	Braced Frame	4.50
24	ASD 16-10	DL + RLL	N73	6.60 k	0.00 k	23.43 k	Braced Frame	4.50
24	ASD 16-10	DL + RLL	N75	0.00 k	0.00 k	10.50 k		3.00
24	ASD 16-10	DL + RLL	N77	0.00 k	0.35 k	12.90 k	Braced Frame	3.00
24	ASD 16-10	DL + RLL	N79	-7.95 k	0.00 k	31.28 k	Braced Frame	5.00
24	ASD 16-10	DL + RLL	N81	-7.95 k	0.00 k	30.86 k	Braced Frame	5.00
24	ASD 16-10	DL + RLL	N83	0.00 k	0.00 k	12.99 k		3.00
24	ASD 16-10	DL + RLL	N85	0.00 k	0.00 k	12.99 k		3.00
24	ASD 16-10	DL + RLL	N87	0.00 k	0.00 k	29.80 k		4.00
24	ASD 16-10	DL + RLL	N89	0.00 k	0.00 k	29.80 k		4.00
24	ASD 16-10	DL + RLL	N91	0.00 k	0.00 k	12.99 k		3.00
24	ASD 16-10	DL + RLL	N93	0.00 k	-0.99 k	13.25 k	Braced Frame	3.00
24	ASD 16-10	DL + RLL	N95	0.00 k	0.00 k	27.82 k		4.00
24	ASD 16-10	DL + RLL	N97	0.00 k	0.00 k	28.36 k		4.00
24	ASD 16-10	DL + RLL	N99	0.00 k	0.00 k	12.36 k		3.00
24	ASD 16-10	DL + RLL	N101	0.00 k	0.00 k	11.21 k		3.00
24	ASD 16-10	DL + RLL	N103	0.00 k	0.00 k	26.13 k		4.00
24	ASD 16-10	DL + RLL	N105	0.00 k	0.00 k	26.13 k		4.00
24	ASD 16-10	DL + RLL	N107	0.00 k	0.00 k	11.21 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N37	0.12 k	-5.04 k	5.11 k	Braced Frame	4.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N39	0.00 k	0.00 k	0.89 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N41	0.00 k	0.00 k	4.35 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N43	0.17 k	0.00 k	1.34 k	Braced Frame	3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N45	0.00 k	0.00 k	1.49 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N47	0.00 k	0.00 k	7.36 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N49	0.00 k	0.00 k	7.36 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N51	0.00 k	0.00 k	1.45 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N53	0.00 k	0.00 k	1.36 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N55	0.00 k	0.00 k	7.43 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N57	0.00 k	0.00 k	7.43 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N59	0.00 k	0.00 k	1.36 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N61	0.00 k	0.00 k	1.20 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N63	0.00 k	0.00 k	6.13 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N65	0.00 k	0.00 k	6.13 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N67	0.00 k	0.00 k	1.20 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N69	0.00 k	-4.95 k	4.94 k	Braced Frame	4.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N71	1.60 k	0.00 k	2.86 k	Braced Frame	3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N73	1.64 k	0.00 k	6.28 k	Braced Frame	3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N75	0.00 k	0.00 k	1.20 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N77	0.00 k	-5.16 k	5.25 k	Braced Frame	4.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N79	-1.76 k	0.00 k	4.21 k	Braced Frame	3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N81	-1.77 k	0.00 k	7.74 k	Braced Frame	3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N83	0.00 k	0.00 k	1.36 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N85	0.00 k	0.00 k	1.36 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N87	0.00 k	0.00 k	7.43 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N89	0.00 k	0.00 k	7.43 k		3.00

LC	Load Case Description		Node	Fx	Fy	Fz	Note	CF Size
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N91	0.00 k	0.00 k	1.36 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N93	0.00 k	-5.42 k	5.40 k	Braced Frame	4.50
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N95	0.00 k	0.00 k	3.37 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N97	0.00 k	0.00 k	7.10 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N99	0.00 k	0.00 k	1.32 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N101	0.00 k	0.00 k	0.98 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N103	0.00 k	0.00 k	4.09 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N105	0.00 k	0.00 k	4.09 k		3.00
25	ASD 16-12a.1	DL + WL{Trans} + WL{Trans[uplift]}	N107	0.00 k	0.00 k	0.98 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N37	1.42 k	-0.04 k	2.33 k	Braced Frame	3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N39	0.00 k	0.00 k	4.49 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N41	0.00 k	0.00 k	4.35 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N43	1.60 k	0.00 k	2.24 k	Braced Frame	3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N45	0.00 k	0.00 k	0.67 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N47	0.00 k	0.00 k	7.36 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N49	0.00 k	0.00 k	7.36 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N51	0.00 k	0.00 k	0.55 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N53	0.00 k	0.00 k	1.36 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N55	0.00 k	0.00 k	7.43 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N57	0.00 k	0.00 k	7.43 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N59	0.00 k	0.00 k	1.36 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N61	0.00 k	0.00 k	1.20 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N63	0.00 k	0.00 k	6.13 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N65	0.00 k	0.00 k	6.13 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N67	0.00 k	0.00 k	1.20 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N69	0.00 k	0.19 k	1.23 k	Braced Frame	3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N71	2.57 k	0.00 k	7.74 k	Braced Frame	3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N73	2.62 k	0.00 k	7.50 k	Braced Frame	3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N75	0.00 k	0.00 k	1.20 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N77	0.00 k	0.02 k	1.52 k	Braced Frame	3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N79	-0.85 k	0.00 k	6.77 k	Braced Frame	3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N81	-0.79 k	0.00 k	6.52 k	Braced Frame	3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N83	0.00 k	0.00 k	1.36 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N85	0.00 k	0.00 k	1.36 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N87	0.00 k	0.00 k	7.43 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N89	0.00 k	0.00 k	7.43 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N91	0.00 k	0.00 k	1.36 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N93	0.00 k	-0.17 k	1.61 k	Braced Frame	3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N95	0.00 k	0.00 k	7.15 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N97	0.00 k	0.00 k	7.10 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N99	0.00 k	0.00 k	1.32 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N101	0.00 k	0.00 k	0.98 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N103	0.00 k	0.00 k	4.09 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N105	0.00 k	0.00 k	4.09 k		3.00
26	ASD 16-12a.2	DL + WL{Long} + WL{Long[uplift]}	N107	0.00 k	0.00 k	0.98 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N37	0.69 k	7.71 k	2.02 k	Braced Frame	5.50
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N39	0.00 k	0.00 k	21.18 k		3.50
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N41	0.00 k	0.00 k	15.44 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N43	0.89 k	0.00 k	7.54 k	Braced Frame	3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N45	0.00 k	0.00 k	7.32 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N47	0.00 k	0.00 k	16.77 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N49	0.00 k	0.00 k	16.77 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N51	0.00 k	0.00 k	7.19 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N53	0.00 k	0.00 k	7.61 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N55	0.00 k	0.00 k	16.93 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N57	0.00 k	0.00 k	16.93 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N59	0.00 k	0.00 k	7.61 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N61	0.00 k	0.00 k	6.20 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N63	0.00 k	0.00 k	13.73 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N65	0.00 k	0.00 k	13.73 k		3.00

LC	Load Case Description		Node	Fx	Fy	Fz	Note	CF Size
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N67	0.00 k	0.00 k	6.20 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N69	0.00 k	9.12 k	-0.20 k	Braced Frame	6.50
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N71	3.70 k	0.00 k	20.18 k	Braced Frame	4.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N73	3.71 k	0.00 k	13.51 k	Braced Frame	3.50
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N75	0.00 k	0.00 k	6.20 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N77	0.00 k	8.62 k	1.57 k	Braced Frame	6.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N79	-4.54 k	0.00 k	24.06 k	Braced Frame	4.50
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N81	-4.44 k	0.00 k	17.61 k	Braced Frame	4.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N83	0.00 k	0.00 k	7.61 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N85	0.00 k	0.00 k	7.61 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N87	0.00 k	0.00 k	16.93 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N89	0.00 k	0.00 k	16.93 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N91	0.00 k	0.00 k	7.61 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N93	0.00 k	8.00 k	1.67 k	Braced Frame	6.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N95	0.00 k	0.00 k	22.06 k		3.50
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N97	0.00 k	0.00 k	16.13 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N99	0.00 k	0.00 k	7.26 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N101	0.00 k	0.00 k	6.48 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N103	0.00 k	0.00 k	14.80 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N105	0.00 k	0.00 k	14.80 k		3.00
27	ASD 16-12b.1	DL + 0.7EL{Trans}	N107	0.00 k	0.00 k	6.48 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N37	7.71 k	-0.41 k	12.32 k	Braced Frame	4.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N39	0.00 k	0.00 k	15.32 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N41	0.00 k	0.00 k	15.44 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N43	7.70 k	0.00 k	11.85 k	Braced Frame	4.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N45	0.00 k	0.00 k	2.87 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N47	0.00 k	0.00 k	16.77 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N49	0.00 k	0.00 k	16.77 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N51	0.00 k	0.00 k	2.88 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N53	0.00 k	0.00 k	7.61 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N55	0.00 k	0.00 k	16.93 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N57	0.00 k	0.00 k	16.93 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N59	0.00 k	0.00 k	7.61 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N61	0.00 k	0.00 k	6.20 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N63	0.00 k	0.00 k	13.73 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N65	0.00 k	0.00 k	13.73 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N67	0.00 k	0.00 k	6.20 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N69	0.00 k	0.76 k	5.82 k	Braced Frame	3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N71	8.58 k	0.00 k	20.27 k	Braced Frame	4.50
28	ASD 16-12b.2	DL + 0.7EL{Long}	N73	8.58 k	0.00 k	19.55 k	Braced Frame	4.50
28	ASD 16-12b.2	DL + 0.7EL{Long}	N75	0.00 k	0.00 k	6.20 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N77	0.00 k	0.19 k	7.64 k	Braced Frame	3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N79	0.44 k	0.00 k	11.88 k	Braced Frame	3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N81	0.44 k	0.00 k	11.57 k	Braced Frame	3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N83	0.00 k	0.00 k	7.61 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N85	0.00 k	0.00 k	7.61 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N87	0.00 k	0.00 k	16.93 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N89	0.00 k	0.00 k	16.93 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N91	0.00 k	0.00 k	7.61 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N93	0.00 k	-0.55 k	7.82 k	Braced Frame	3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N95	0.00 k	0.00 k	15.91 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N97	0.00 k	0.00 k	16.13 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N99	0.00 k	0.00 k	7.26 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N101	0.00 k	0.00 k	6.48 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N103	0.00 k	0.00 k	14.80 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N105	0.00 k	0.00 k	14.80 k		3.00
28	ASD 16-12b.2	DL + 0.7EL{Long}	N107	0.00 k	0.00 k	6.48 k		3.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N37	1.13 k	5.43 k	7.66 k	Braced Frame	4.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N39	0.00 k	0.00 k	28.42 k		4.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N41	0.00 k	0.00 k	24.33 k		3.50

LC	Load Case Description		Node	Fx	Fy	Fz	Note	CF Size
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N43	1.27 k	0.00 k	11.49 k	Braced Frame	3.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N45	0.00 k	0.00 k	11.03 k		3.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N47	0.00 k	0.00 k	26.33 k		4.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N49	0.00 k	0.00 k	26.33 k		4.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N51	0.00 k	0.00 k	10.94 k		3.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N53	0.00 k	0.00 k	11.64 k		3.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N55	0.00 k	0.00 k	26.58 k		4.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N57	0.00 k	0.00 k	26.58 k		4.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N59	0.00 k	0.00 k	11.64 k		3.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N61	0.00 k	0.00 k	9.42 k		3.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N63	0.00 k	0.00 k	21.46 k		3.50
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N65	0.00 k	0.00 k	21.46 k		3.50
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N67	0.00 k	0.00 k	9.42 k		3.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N69	0.00 k	7.50 k	4.19 k	Braced Frame	5.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N71	5.89 k	0.00 k	26.49 k	Braced Frame	4.50
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N73	5.89 k	0.00 k	20.97 k	Braced Frame	4.50
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N75	0.00 k	0.00 k	9.42 k		3.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N77	0.00 k	6.63 k	7.03 k	Braced Frame	4.50
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N79	-7.13 k	0.00 k	32.53 k	Braced Frame	5.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N81	-7.05 k	0.00 k	27.53 k	Braced Frame	4.50
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N83	0.00 k	0.00 k	11.64 k		3.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N85	0.00 k	0.00 k	11.64 k		3.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N87	0.00 k	0.00 k	26.58 k		4.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N89	0.00 k	0.00 k	26.58 k		4.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N91	0.00 k	0.00 k	11.64 k		3.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N93	0.00 k	5.53 k	7.28 k	Braced Frame	4.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N95	0.00 k	0.00 k	29.46 k		4.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N97	0.00 k	0.00 k	25.30 k		3.50
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N99	0.00 k	0.00 k	11.09 k		3.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N101	0.00 k	0.00 k	10.03 k		3.00
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N103	0.00 k	0.00 k	23.30 k		3.50
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N105	0.00 k	0.00 k	23.30 k		3.50
29	ASD 16-13a.1	DL + 0.75RLL + 0.525EL{Trans}	N107	0.00 k	0.00 k	10.03 k		3.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N37	6.40 k	-0.66 k	15.38 k	Braced Frame	4.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N39	0.00 k	0.00 k	24.02 k		3.50
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N41	0.00 k	0.00 k	24.33 k		3.50
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N43	6.38 k	0.00 k	14.72 k	Braced Frame	4.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N45	0.00 k	0.00 k	7.69 k		3.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N47	0.00 k	0.00 k	26.33 k		4.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N49	0.00 k	0.00 k	26.33 k		4.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N51	0.00 k	0.00 k	7.71 k		3.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N53	0.00 k	0.00 k	11.64 k		3.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N55	0.00 k	0.00 k	26.58 k		4.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N57	0.00 k	0.00 k	26.58 k		4.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N59	0.00 k	0.00 k	11.64 k		3.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N61	0.00 k	0.00 k	9.42 k		3.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N63	0.00 k	0.00 k	21.46 k		3.50
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N65	0.00 k	0.00 k	21.46 k		3.50
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N67	0.00 k	0.00 k	9.42 k		3.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N69	0.00 k	1.23 k	8.71 k	Braced Frame	3.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N71	9.56 k	0.00 k	26.56 k	Braced Frame	5.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N73	9.55 k	0.00 k	25.50 k	Braced Frame	5.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N75	0.00 k	0.00 k	9.42 k		3.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N77	0.00 k	0.31 k	11.59 k	Braced Frame	3.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N79	-3.40 k	0.00 k	23.39 k	Braced Frame	4.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N81	-3.40 k	0.00 k	23.00 k	Braced Frame	4.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N83	0.00 k	0.00 k	11.64 k		3.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N85	0.00 k	0.00 k	11.64 k		3.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N87	0.00 k	0.00 k	26.58 k		4.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N89	0.00 k	0.00 k	26.58 k		4.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N91	0.00 k	0.00 k	11.64 k		3.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N93	0.00 k	-0.88 k	11.89 k	Braced Frame	3.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N95	0.00 k	0.00 k	24.84 k		3.50

LC	Load Case Description		Node	Fx	Fy	Fz	Note	CF Size
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N97	0.00 k	0.00 k	25.30 k		3.50
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N99	0.00 k	0.00 k	11.09 k		3.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N101	0.00 k	0.00 k	10.03 k		3.00
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N103	0.00 k	0.00 k	23.30 k		3.50
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N105	0.00 k	0.00 k	23.30 k		3.50
30	ASD 16-13a.2	DL + 0.75RLL + 0.525EL{Long}	N107	0.00 k	0.00 k	10.03 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N37	0.71 k	-4.13 k	9.97 k	Braced Frame	3.50
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N39	0.00 k	0.00 k	13.20 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N41	0.00 k	0.00 k	16.01 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N43	0.73 k	0.00 k	6.84 k	Braced Frame	3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N45	0.00 k	0.00 k	6.65 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N47	0.00 k	0.00 k	19.27 k		3.50
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N49	0.00 k	0.00 k	19.27 k		3.50
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N51	0.00 k	0.00 k	6.64 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N53	0.00 k	0.00 k	6.95 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N55	0.00 k	0.00 k	19.46 k		3.50
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N57	0.00 k	0.00 k	19.46 k		3.50
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N59	0.00 k	0.00 k	6.95 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N61	0.00 k	0.00 k	5.67 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N63	0.00 k	0.00 k	15.76 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N65	0.00 k	0.00 k	15.76 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N67	0.00 k	0.00 k	5.67 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N69	0.00 k	-3.05 k	8.05 k	Braced Frame	3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N71	4.32 k	0.00 k	13.50 k	Braced Frame	3.50
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N73	4.34 k	0.00 k	15.54 k	Braced Frame	4.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N75	0.00 k	0.00 k	5.67 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N77	0.00 k	-3.70 k	9.80 k	Braced Frame	3.50
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N79	-5.05 k	0.00 k	17.64 k	Braced Frame	4.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N81	-5.06 k	0.00 k	20.13 k	Braced Frame	4.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N83	0.00 k	0.00 k	6.95 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N85	0.00 k	0.00 k	6.95 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N87	0.00 k	0.00 k	19.46 k		3.50
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N89	0.00 k	0.00 k	19.46 k		3.50
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N91	0.00 k	0.00 k	6.95 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N93	0.00 k	-4.54 k	10.08 k	Braced Frame	3.50
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N95	0.00 k	0.00 k	15.44 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N97	0.00 k	0.00 k	18.53 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N99	0.00 k	0.00 k	6.63 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N101	0.00 k	0.00 k	5.91 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N103	0.00 k	0.00 k	15.27 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N105	0.00 k	0.00 k	15.27 k		3.00
31	ASD 16-13b.1	DL + 0.75RLL + 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N107	0.00 k	0.00 k	5.91 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N37	1.68 k	-0.39 k	7.89 k	Braced Frame	3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N39	0.00 k	0.00 k	15.90 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N41	0.00 k	0.00 k	16.01 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N43	1.80 k	0.00 k	7.51 k	Braced Frame	3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N45	0.00 k	0.00 k	6.04 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N47	0.00 k	0.00 k	19.27 k		3.50
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N49	0.00 k	0.00 k	19.27 k		3.50
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N51	0.00 k	0.00 k	5.96 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N53	0.00 k	0.00 k	6.95 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N55	0.00 k	0.00 k	19.46 k		3.50
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N57	0.00 k	0.00 k	19.46 k		3.50
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N59	0.00 k	0.00 k	6.95 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N61	0.00 k	0.00 k	5.67 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N63	0.00 k	0.00 k	15.76 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N65	0.00 k	0.00 k	15.76 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N67	0.00 k	0.00 k	5.67 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N69	0.00 k	0.80 k	5.27 k	Braced Frame	3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N71	5.05 k	0.00 k	17.16 k	Braced Frame	4.00

LC	Load Case Description		Node	Fx	Fy	Fz	Note	CF Size
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N73	5.08 k	0.00 k	16.46 k	Braced Frame	4.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N75	0.00 k	0.00 k	5.67 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N77	0.00 k	0.18 k	7.00 k	Braced Frame	3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N79	-4.36 k	0.00 k	19.56 k	Braced Frame	4.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N81	-4.32 k	0.00 k	19.22 k	Braced Frame	4.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N83	0.00 k	0.00 k	6.95 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N85	0.00 k	0.00 k	6.95 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N87	0.00 k	0.00 k	19.46 k		3.50
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N89	0.00 k	0.00 k	19.46 k		3.50
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N91	0.00 k	0.00 k	6.95 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N93	0.00 k	-0.60 k	7.24 k	Braced Frame	3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N95	0.00 k	0.00 k	18.28 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N97	0.00 k	0.00 k	18.53 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N99	0.00 k	0.00 k	6.63 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N101	0.00 k	0.00 k	5.91 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N103	0.00 k	0.00 k	15.27 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N105	0.00 k	0.00 k	15.27 k		3.00
32	ASD 16-13b.2	DL + 0.75RLL + 0.75WL{Long} + 0.75WL{Long[uplift]}	N107	0.00 k	0.00 k	5.91 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N37	-0.20 k	-4.88 k	1.93 k	Braced Frame	5.50
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N39	0.00 k	0.00 k	-5.24 k		5.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N41	0.00 k	0.00 k	-1.83 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N43	-0.14 k	0.00 k	-1.65 k	Braced Frame	3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N45	0.00 k	0.00 k	-1.41 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N47	0.00 k	0.00 k	0.66 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N49	0.00 k	0.00 k	0.66 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N51	0.00 k	0.00 k	-1.45 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N53	0.00 k	0.00 k	-1.68 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N55	0.00 k	0.00 k	0.66 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N57	0.00 k	0.00 k	0.66 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N59	0.00 k	0.00 k	-1.68 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N61	0.00 k	0.00 k	-1.28 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N63	0.00 k	0.00 k	0.64 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N65	0.00 k	0.00 k	0.64 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N67	0.00 k	0.00 k	-1.28 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N69	0.00 k	-5.25 k	2.61 k	Braced Frame	5.50
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N71	0.13 k	0.00 k	-2.81 k	Braced Frame	4.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N73	0.17 k	0.00 k	0.89 k	Braced Frame	3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N75	0.00 k	0.00 k	-1.28 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N77	0.00 k	-5.24 k	2.20 k	Braced Frame	5.50
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N79	0.02 k	0.00 k	-2.97 k	Braced Frame	4.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N81	0.01 k	0.00 k	0.68 k	Braced Frame	3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N83	0.00 k	0.00 k	-1.68 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N85	0.00 k	0.00 k	-1.68 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N87	0.00 k	0.00 k	0.66 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N89	0.00 k	0.00 k	0.66 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N91	0.00 k	0.00 k	-1.68 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N93	0.00 k	-5.20 k	2.27 k	Braced Frame	5.50
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N95	0.00 k	0.00 k	-3.00 k		4.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N97	0.00 k	0.00 k	0.65 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N99	0.00 k	0.00 k	-1.58 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N101	0.00 k	0.00 k	-1.61 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N103	0.00 k	0.00 k	-1.83 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N105	0.00 k	0.00 k	-1.83 k		3.00
33	ASD 16-14.1	0.6DL + WL{Trans} + WL{Trans[uplift]}	N107	0.00 k	0.00 k	-1.61 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N37	1.10 k	0.12 k	-0.85 k	Braced Frame	4.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N39	0.00 k	0.00 k	-1.64 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N41	0.00 k	0.00 k	-1.83 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N43	1.29 k	0.00 k	-0.75 k	Braced Frame	4.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N45	0.00 k	0.00 k	-2.23 k		3.50
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N47	0.00 k	0.00 k	0.66 k		3.00

LC	Load Case Description		Node	Fx	Fy	Fz	Note	CF Size
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N49	0.00 k	0.00 k	0.66 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N51	0.00 k	0.00 k	-2.35 k		3.50
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N53	0.00 k	0.00 k	-1.68 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N55	0.00 k	0.00 k	0.66 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N57	0.00 k	0.00 k	0.66 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N59	0.00 k	0.00 k	-1.68 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N61	0.00 k	0.00 k	-1.28 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N63	0.00 k	0.00 k	0.64 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N65	0.00 k	0.00 k	0.64 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N67	0.00 k	0.00 k	-1.28 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N69	0.00 k	-0.11 k	-1.10 k	Braced Frame	3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N71	1.10 k	0.00 k	2.06 k	Braced Frame	3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N73	1.15 k	0.00 k	2.11 k	Braced Frame	3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N75	0.00 k	0.00 k	-1.28 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N77	0.00 k	-0.06 k	-1.54 k	Braced Frame	3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N79	0.94 k	0.00 k	-0.41 k	Braced Frame	3.50
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N81	1.00 k	0.00 k	-0.54 k	Braced Frame	4.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N83	0.00 k	0.00 k	-1.68 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N85	0.00 k	0.00 k	-1.68 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N87	0.00 k	0.00 k	0.66 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N89	0.00 k	0.00 k	0.66 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N91	0.00 k	0.00 k	-1.68 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N93	0.00 k	0.05 k	-1.52 k	Braced Frame	3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N95	0.00 k	0.00 k	0.79 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N97	0.00 k	0.00 k	0.65 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N99	0.00 k	0.00 k	-1.58 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N101	0.00 k	0.00 k	-1.61 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N103	0.00 k	0.00 k	-1.83 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N105	0.00 k	0.00 k	-1.83 k		3.00
34	ASD 16-14.2	0.6DL + WL{Long} + WL{Long[uplift]}	N107	0.00 k	0.00 k	-1.61 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N37	0.37 k	7.88 k	-1.16 k	Braced Frame	8.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N39	0.00 k	0.00 k	15.05 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N41	0.00 k	0.00 k	9.27 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N43	0.58 k	0.00 k	4.55 k	Braced Frame	3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N45	0.00 k	0.00 k	4.42 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N47	0.00 k	0.00 k	10.06 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N49	0.00 k	0.00 k	10.06 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N51	0.00 k	0.00 k	4.29 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N53	0.00 k	0.00 k	4.57 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N55	0.00 k	0.00 k	10.16 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N57	0.00 k	0.00 k	10.16 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N59	0.00 k	0.00 k	4.57 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N61	0.00 k	0.00 k	3.72 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N63	0.00 k	0.00 k	8.24 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N65	0.00 k	0.00 k	8.24 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N67	0.00 k	0.00 k	3.72 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N69	0.00 k	8.82 k	-2.53 k	Braced Frame	9.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N71	2.22 k	0.00 k	14.51 k	Braced Frame	3.50
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N73	2.24 k	0.00 k	8.12 k	Braced Frame	3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N75	0.00 k	0.00 k	3.72 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N77	0.00 k	8.54 k	-1.49 k	Braced Frame	8.50
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N79	-2.76 k	0.00 k	16.88 k	Braced Frame	3.50
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N81	-2.65 k	0.00 k	10.55 k	Braced Frame	3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N83	0.00 k	0.00 k	4.57 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N85	0.00 k	0.00 k	4.57 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N87	0.00 k	0.00 k	10.16 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N89	0.00 k	0.00 k	10.16 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N91	0.00 k	0.00 k	4.57 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N93	0.00 k	8.21 k	-1.46 k	Braced Frame	8.50
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N95	0.00 k	0.00 k	15.70 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N97	0.00 k	0.00 k	9.68 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N99	0.00 k	0.00 k	4.35 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N101	0.00 k	0.00 k	3.89 k		3.00

LC	Load Case Description		Node	Fx	Fy	Fz	Note	CF Size
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N103	0.00 k	0.00 k	8.88 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N105	0.00 k	0.00 k	8.88 k		3.00
35	ASD 16-15.1	0.6DL + 0.7EL{Trans}	N107	0.00 k	0.00 k	3.89 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N37	7.39 k	-0.25 k	9.14 k	Braced Frame	5.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N39	0.00 k	0.00 k	9.19 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N41	0.00 k	0.00 k	9.27 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N43	7.39 k	0.00 k	8.86 k	Braced Frame	5.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N45	0.00 k	0.00 k	-0.03 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N47	0.00 k	0.00 k	10.06 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N49	0.00 k	0.00 k	10.06 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N51	0.00 k	0.00 k	-0.02 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N53	0.00 k	0.00 k	4.57 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N55	0.00 k	0.00 k	10.16 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N57	0.00 k	0.00 k	10.16 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N59	0.00 k	0.00 k	4.57 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N61	0.00 k	0.00 k	3.72 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N63	0.00 k	0.00 k	8.24 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N65	0.00 k	0.00 k	8.24 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N67	0.00 k	0.00 k	3.72 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N69	0.00 k	0.46 k	3.49 k	Braced Frame	3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N71	7.11 k	0.00 k	14.60 k	Braced Frame	4.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N73	7.11 k	0.00 k	14.16 k	Braced Frame	4.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N75	0.00 k	0.00 k	3.72 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N77	0.00 k	0.12 k	4.59 k	Braced Frame	3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N79	2.22 k	0.00 k	4.69 k	Braced Frame	3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N81	2.22 k	0.00 k	4.51 k	Braced Frame	3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N83	0.00 k	0.00 k	4.57 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N85	0.00 k	0.00 k	4.57 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N87	0.00 k	0.00 k	10.16 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N89	0.00 k	0.00 k	10.16 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N91	0.00 k	0.00 k	4.57 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N93	0.00 k	-0.33 k	4.69 k	Braced Frame	3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N95	0.00 k	0.00 k	9.54 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N97	0.00 k	0.00 k	9.68 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N99	0.00 k	0.00 k	4.35 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N101	0.00 k	0.00 k	3.89 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N103	0.00 k	0.00 k	8.88 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N105	0.00 k	0.00 k	8.88 k		3.00
36	ASD 16-15.2	0.6DL + 0.7EL{Long}	N107	0.00 k	0.00 k	3.89 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N37	-0.01 k	4.95 k	-2.18 k	Braced Frame	5.50
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N39	0.00 k	0.00 k	8.09 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N41	0.00 k	0.00 k	4.35 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N43	0.30 k	0.00 k	1.42 k	Braced Frame	3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N45	0.00 k	0.00 k	1.57 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N47	0.00 k	0.00 k	7.36 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N49	0.00 k	0.00 k	7.36 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N51	0.00 k	0.00 k	1.37 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N53	0.00 k	0.00 k	1.36 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N55	0.00 k	0.00 k	7.43 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N57	0.00 k	0.00 k	7.43 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N59	0.00 k	0.00 k	1.36 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N61	0.00 k	0.00 k	1.20 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N63	0.00 k	0.00 k	6.13 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N65	0.00 k	0.00 k	6.13 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N67	0.00 k	0.00 k	1.20 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N69	0.00 k	5.34 k	-2.47 k	Braced Frame	5.50
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N71	1.62 k	0.00 k	10.23 k	Braced Frame	3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N73	1.68 k	0.00 k	6.32 k	Braced Frame	3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N75	0.00 k	0.00 k	1.20 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N77	0.00 k	5.20 k	-2.22 k	Braced Frame	5.50

LC	Load Case Description		Node	Fx	Fy	Fz	Note	CF Size
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N79	-1.86 k	0.00 k	11.72 k	Braced Frame	3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N81	-1.74 k	0.00 k	7.69 k	Braced Frame	3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N83	0.00 k	0.00 k	1.36 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N85	0.00 k	0.00 k	1.36 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N87	0.00 k	0.00 k	7.43 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N89	0.00 k	0.00 k	7.43 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N91	0.00 k	0.00 k	1.36 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N93	0.00 k	5.08 k	-2.17 k	Braced Frame	5.50
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N95	0.00 k	0.00 k	10.94 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N97	0.00 k	0.00 k	7.10 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N99	0.00 k	0.00 k	1.32 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N101	0.00 k	0.00 k	0.98 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N103	0.00 k	0.00 k	4.09 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N105	0.00 k	0.00 k	4.09 k		3.00
37	ASD 16-12a.1 (- Lateral)	DL-WL{Trans} + WL{Trans[uplift]}	N107	0.00 k	0.00 k	0.98 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N37	-1.30 k	-0.04 k	0.61 k	Braced Frame	3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N39	0.00 k	0.00 k	4.49 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N41	0.00 k	0.00 k	4.35 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N43	-1.12 k	0.00 k	0.52 k	Braced Frame	3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N45	0.00 k	0.00 k	2.39 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N47	0.00 k	0.00 k	7.36 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N49	0.00 k	0.00 k	7.36 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N51	0.00 k	0.00 k	2.27 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N53	0.00 k	0.00 k	1.36 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N55	0.00 k	0.00 k	7.43 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N57	0.00 k	0.00 k	7.43 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N59	0.00 k	0.00 k	1.36 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N61	0.00 k	0.00 k	1.20 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N63	0.00 k	0.00 k	6.13 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N65	0.00 k	0.00 k	6.13 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N67	0.00 k	0.00 k	1.20 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N69	0.00 k	0.19 k	1.23 k	Braced Frame	3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N71	0.65 k	0.00 k	5.35 k	Braced Frame	3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N73	0.70 k	0.00 k	5.11 k	Braced Frame	3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N75	0.00 k	0.00 k	1.20 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N77	0.00 k	0.02 k	1.52 k	Braced Frame	3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N79	-2.77 k	0.00 k	9.16 k	Braced Frame	3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N81	-2.72 k	0.00 k	8.91 k	Braced Frame	3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N83	0.00 k	0.00 k	1.36 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N85	0.00 k	0.00 k	1.36 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N87	0.00 k	0.00 k	7.43 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N89	0.00 k	0.00 k	7.43 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N91	0.00 k	0.00 k	1.36 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N93	0.00 k	-0.17 k	1.61 k	Braced Frame	3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N95	0.00 k	0.00 k	7.15 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N97	0.00 k	0.00 k	7.10 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N99	0.00 k	0.00 k	1.32 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N101	0.00 k	0.00 k	0.98 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N103	0.00 k	0.00 k	4.09 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N105	0.00 k	0.00 k	4.09 k		3.00
38	ASD 16-12a.2 (- Lateral)	DL-WL{Long} + WL{Long[uplift]}	N107	0.00 k	0.00 k	0.98 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N37	0.90 k	-8.53 k	13.87 k	Braced Frame	4.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N39	0.00 k	0.00 k	9.47 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N41	0.00 k	0.00 k	15.44 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N43	0.68 k	0.00 k	7.41 k	Braced Frame	3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N45	0.00 k	0.00 k	7.18 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N47	0.00 k	0.00 k	16.77 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N49	0.00 k	0.00 k	16.77 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N51	0.00 k	0.00 k	7.32 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N53	0.00 k	0.00 k	7.61 k		3.00

LC	Load Case Description		Node	Fx	Fy	Fz	Note	CF Size
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N55	0.00 k	0.00 k	16.93 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N57	0.00 k	0.00 k	16.93 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N59	0.00 k	0.00 k	7.61 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N61	0.00 k	0.00 k	6.20 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N63	0.00 k	0.00 k	13.73 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N65	0.00 k	0.00 k	13.73 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N67	0.00 k	0.00 k	6.20 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N69	0.00 k	-7.60 k	11.85 k	Braced Frame	4.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N71	3.67 k	0.00 k	8.21 k	Braced Frame	3.50
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N73	3.65 k	0.00 k	13.43 k	Braced Frame	3.50
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N75	0.00 k	0.00 k	6.20 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N77	0.00 k	-8.23 k	13.72 k	Braced Frame	4.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N79	-4.39 k	0.00 k	11.84 k	Braced Frame	3.50
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N81	-4.50 k	0.00 k	17.68 k	Braced Frame	4.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N83	0.00 k	0.00 k	7.61 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N85	0.00 k	0.00 k	7.61 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N87	0.00 k	0.00 k	16.93 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N89	0.00 k	0.00 k	16.93 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N91	0.00 k	0.00 k	7.61 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N93	0.00 k	-9.09 k	13.98 k	Braced Frame	4.50
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N95	0.00 k	0.00 k	9.75 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N97	0.00 k	0.00 k	16.13 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N99	0.00 k	0.00 k	7.26 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N101	0.00 k	0.00 k	6.48 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N103	0.00 k	0.00 k	14.80 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N105	0.00 k	0.00 k	14.80 k		3.00
39	ASD 16-12b.1 (- Lateral)	DL - 0.7EL{Trans}	N107	0.00 k	0.00 k	6.48 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N37	-6.13 k	-0.41 k	3.57 k	Braced Frame	5.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N39	0.00 k	0.00 k	15.32 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N41	0.00 k	0.00 k	15.44 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N43	-6.14 k	0.00 k	3.10 k	Braced Frame	5.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N45	0.00 k	0.00 k	11.63 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N47	0.00 k	0.00 k	16.77 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N49	0.00 k	0.00 k	16.77 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N51	0.00 k	0.00 k	11.63 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N53	0.00 k	0.00 k	7.61 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N55	0.00 k	0.00 k	16.93 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N57	0.00 k	0.00 k	16.93 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N59	0.00 k	0.00 k	7.61 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N61	0.00 k	0.00 k	6.20 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N63	0.00 k	0.00 k	13.73 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N65	0.00 k	0.00 k	13.73 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N67	0.00 k	0.00 k	6.20 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N69	0.00 k	0.76 k	5.82 k	Braced Frame	3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N71	-1.22 k	0.00 k	8.12 k	Braced Frame	3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N73	-1.23 k	0.00 k	7.39 k	Braced Frame	3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N75	0.00 k	0.00 k	6.20 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N77	0.00 k	0.19 k	7.64 k	Braced Frame	3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N79	-9.37 k	0.00 k	24.03 k	Braced Frame	5.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N81	-9.37 k	0.00 k	23.72 k	Braced Frame	5.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N83	0.00 k	0.00 k	7.61 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N85	0.00 k	0.00 k	7.61 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N87	0.00 k	0.00 k	16.93 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N89	0.00 k	0.00 k	16.93 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N91	0.00 k	0.00 k	7.61 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N93	0.00 k	-0.55 k	7.82 k	Braced Frame	3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N95	0.00 k	0.00 k	15.91 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N97	0.00 k	0.00 k	16.13 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N99	0.00 k	0.00 k	7.26 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N101	0.00 k	0.00 k	6.48 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N103	0.00 k	0.00 k	14.80 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N105	0.00 k	0.00 k	14.80 k		3.00
40	ASD 16-12b.2 (- Lateral)	DL - 0.7EL{Long}	N107	0.00 k	0.00 k	6.48 k		3.00

LC	Load Case Description		Node	Fx	Fy	Fz	Note	CF Size
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N37	1.29 k	-6.75 k	16.54 k	Braced Frame	4.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N39	0.00 k	0.00 k	19.63 k		3.50
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N41	0.00 k	0.00 k	24.33 k		3.50
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N43	1.11 k	0.00 k	11.39 k	Braced Frame	3.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N45	0.00 k	0.00 k	10.93 k		3.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N47	0.00 k	0.00 k	26.33 k		4.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N49	0.00 k	0.00 k	26.33 k		4.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N51	0.00 k	0.00 k	11.04 k		3.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N53	0.00 k	0.00 k	11.64 k		3.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N55	0.00 k	0.00 k	26.58 k		4.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N57	0.00 k	0.00 k	26.58 k		4.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N59	0.00 k	0.00 k	11.64 k		3.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N61	0.00 k	0.00 k	9.42 k		3.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N63	0.00 k	0.00 k	21.46 k		3.50
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N65	0.00 k	0.00 k	21.46 k		3.50
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N67	0.00 k	0.00 k	9.42 k		3.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N69	0.00 k	-5.04 k	13.23 k	Braced Frame	4.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N71	5.87 k	0.00 k	17.51 k	Braced Frame	4.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N73	5.85 k	0.00 k	20.91 k	Braced Frame	4.50
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N75	0.00 k	0.00 k	9.42 k		3.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N77	0.00 k	-6.01 k	16.14 k	Braced Frame	4.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N79	-7.02 k	0.00 k	23.37 k	Braced Frame	4.50
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N81	-7.10 k	0.00 k	27.59 k	Braced Frame	4.50
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N83	0.00 k	0.00 k	11.64 k		3.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N85	0.00 k	0.00 k	11.64 k		3.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N87	0.00 k	0.00 k	26.58 k		4.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N89	0.00 k	0.00 k	26.58 k		4.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N91	0.00 k	0.00 k	11.64 k		3.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N93	0.00 k	-7.29 k	16.51 k	Braced Frame	4.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N95	0.00 k	0.00 k	20.22 k		3.50
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N97	0.00 k	0.00 k	25.30 k		3.50
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N99	0.00 k	0.00 k	11.09 k		3.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N101	0.00 k	0.00 k	10.03 k		3.00
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N103	0.00 k	0.00 k	23.30 k		3.50
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N105	0.00 k	0.00 k	23.30 k		3.50
41	ASD 16-13a.1 (- Lateral)	DL + 0.75RLL - 0.525EL{Trans}	N107	0.00 k	0.00 k	10.03 k		3.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N37	-3.98 k	-0.66 k	8.82 k	Braced Frame	3.50
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N39	0.00 k	0.00 k	24.02 k		3.50
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N41	0.00 k	0.00 k	24.33 k		3.50
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N43	-4.00 k	0.00 k	8.15 k	Braced Frame	3.50
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N45	0.00 k	0.00 k	14.26 k		3.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N47	0.00 k	0.00 k	26.33 k		4.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N49	0.00 k	0.00 k	26.33 k		4.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N51	0.00 k	0.00 k	14.27 k		3.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N53	0.00 k	0.00 k	11.64 k		3.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N55	0.00 k	0.00 k	26.58 k		4.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N57	0.00 k	0.00 k	26.58 k		4.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N59	0.00 k	0.00 k	11.64 k		3.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N61	0.00 k	0.00 k	9.42 k		3.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N63	0.00 k	0.00 k	21.46 k		3.50
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N65	0.00 k	0.00 k	21.46 k		3.50
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N67	0.00 k	0.00 k	9.42 k		3.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N69	0.00 k	1.23 k	8.71 k	Braced Frame	3.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N71	2.21 k	0.00 k	17.44 k	Braced Frame	3.50
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N73	2.19 k	0.00 k	16.38 k	Braced Frame	3.50
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N75	0.00 k	0.00 k	9.42 k		3.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N77	0.00 k	0.31 k	11.59 k	Braced Frame	3.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N79	-10.75 k	0.00 k	32.51 k	Braced Frame	5.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N81	-10.75 k	0.00 k	32.12 k	Braced Frame	5.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N83	0.00 k	0.00 k	11.64 k		3.00

LC	Load Case Description		Node	Fx	Fy	Fz	Note	CF Size
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N85	0.00 k	0.00 k	11.64 k		3.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N87	0.00 k	0.00 k	26.58 k		4.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N89	0.00 k	0.00 k	26.58 k		4.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N91	0.00 k	0.00 k	11.64 k		3.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N93	0.00 k	-0.88 k	11.89 k	Braced Frame	3.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N95	0.00 k	0.00 k	24.84 k		3.50
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N97	0.00 k	0.00 k	25.30 k		3.50
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N99	0.00 k	0.00 k	11.09 k		3.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N101	0.00 k	0.00 k	10.03 k		3.00
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N103	0.00 k	0.00 k	23.30 k		3.50
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N105	0.00 k	0.00 k	23.30 k		3.50
42	ASD 16-13a.2 (- Lateral)	DL + 0.75RLL - 0.525EL{Long}	N107	0.00 k	0.00 k	10.03 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N37	0.61 k	3.36 k	4.51 k	Braced Frame	3.50
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N39	0.00 k	0.00 k	18.60 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N41	0.00 k	0.00 k	16.01 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N43	0.83 k	0.00 k	6.90 k	Braced Frame	3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N45	0.00 k	0.00 k	6.72 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N47	0.00 k	0.00 k	19.27 k		3.50
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N49	0.00 k	0.00 k	19.27 k		3.50
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N51	0.00 k	0.00 k	6.58 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N53	0.00 k	0.00 k	6.95 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N55	0.00 k	0.00 k	19.46 k		3.50
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N57	0.00 k	0.00 k	19.46 k		3.50
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N59	0.00 k	0.00 k	6.95 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N61	0.00 k	0.00 k	5.67 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N63	0.00 k	0.00 k	15.76 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N65	0.00 k	0.00 k	15.76 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N67	0.00 k	0.00 k	5.67 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N69	0.00 k	4.66 k	2.49 k	Braced Frame	4.50
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N71	4.33 k	0.00 k	19.03 k	Braced Frame	4.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N73	4.37 k	0.00 k	15.58 k	Braced Frame	4.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N75	0.00 k	0.00 k	5.67 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N77	0.00 k	4.07 k	4.19 k	Braced Frame	4.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N79	-5.12 k	0.00 k	23.28 k	Braced Frame	4.50
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N81	-5.03 k	0.00 k	20.09 k	Braced Frame	4.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N83	0.00 k	0.00 k	6.95 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N85	0.00 k	0.00 k	6.95 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N87	0.00 k	0.00 k	19.46 k		3.50
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N89	0.00 k	0.00 k	19.46 k		3.50
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N91	0.00 k	0.00 k	6.95 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N93	0.00 k	3.34 k	4.40 k	Braced Frame	3.50
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N95	0.00 k	0.00 k	21.12 k		3.50
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N97	0.00 k	0.00 k	18.53 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N99	0.00 k	0.00 k	6.63 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N101	0.00 k	0.00 k	5.91 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N103	0.00 k	0.00 k	15.27 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N105	0.00 k	0.00 k	15.27 k		3.00
43	ASD 16-13b.1 (- Lateral)	DL + 0.75RLL - 0.75WL{Trans} + 0.75WL{Trans[uplift]}	N107	0.00 k	0.00 k	5.91 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N37	-0.36 k	-0.39 k	6.60 k	Braced Frame	3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N39	0.00 k	0.00 k	15.90 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N41	0.00 k	0.00 k	16.01 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N43	-0.24 k	0.00 k	6.22 k	Braced Frame	3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N45	0.00 k	0.00 k	7.33 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N47	0.00 k	0.00 k	19.27 k		3.50
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N49	0.00 k	0.00 k	19.27 k		3.50
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N51	0.00 k	0.00 k	7.25 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N53	0.00 k	0.00 k	6.95 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N55	0.00 k	0.00 k	19.46 k		3.50
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N57	0.00 k	0.00 k	19.46 k		3.50
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N59	0.00 k	0.00 k	6.95 k		3.00

LC	Load Case Description		Node	Fx	Fy	Fz	Note	CF Size
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N61	0.00 k	0.00 k	5.67 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N63	0.00 k	0.00 k	15.76 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N65	0.00 k	0.00 k	15.76 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N67	0.00 k	0.00 k	5.67 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N69	0.00 k	0.80 k	5.27 k	Braced Frame	3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N71	3.61 k	0.00 k	15.37 k	Braced Frame	3.50
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N73	3.64 k	0.00 k	14.66 k	Braced Frame	3.50
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N75	0.00 k	0.00 k	5.67 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N77	0.00 k	0.18 k	7.00 k	Braced Frame	3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N79	-5.80 k	0.00 k	21.35 k	Braced Frame	4.50
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N81	-5.77 k	0.00 k	21.01 k	Braced Frame	4.50
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N83	0.00 k	0.00 k	6.95 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N85	0.00 k	0.00 k	6.95 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N87	0.00 k	0.00 k	19.46 k		3.50
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N89	0.00 k	0.00 k	19.46 k		3.50
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N91	0.00 k	0.00 k	6.95 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N93	0.00 k	-0.60 k	7.24 k	Braced Frame	3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N95	0.00 k	0.00 k	18.28 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N97	0.00 k	0.00 k	18.53 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N99	0.00 k	0.00 k	6.63 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N101	0.00 k	0.00 k	5.91 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N103	0.00 k	0.00 k	15.27 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N105	0.00 k	0.00 k	15.27 k		3.00
44	ASD 16-13b.2 (- Lateral)	DL + 0.75RLL - 0.75WL{Long} + 0.75WL{Long[uplift]}	N107	0.00 k	0.00 k	5.91 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N37	-0.33 k	5.12 k	-5.35 k	Braced Frame	7.50
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N39	0.00 k	0.00 k	1.97 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N41	0.00 k	0.00 k	-1.83 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N43	-0.01 k	0.00 k	-1.57 k	Braced Frame	3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N45	0.00 k	0.00 k	-1.33 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N47	0.00 k	0.00 k	0.66 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N49	0.00 k	0.00 k	0.66 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N51	0.00 k	0.00 k	-1.53 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N53	0.00 k	0.00 k	-1.68 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N55	0.00 k	0.00 k	0.66 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N57	0.00 k	0.00 k	0.66 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N59	0.00 k	0.00 k	-1.68 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N61	0.00 k	0.00 k	-1.28 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N63	0.00 k	0.00 k	0.64 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N65	0.00 k	0.00 k	0.64 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N67	0.00 k	0.00 k	-1.28 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N69	0.00 k	5.03 k	-4.80 k	Braced Frame	7.50
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N71	0.14 k	0.00 k	4.55 k	Braced Frame	3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N73	0.21 k	0.00 k	0.94 k	Braced Frame	3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N75	0.00 k	0.00 k	-1.28 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N77	0.00 k	5.12 k	-5.27 k	Braced Frame	7.50
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N79	-0.07 k	0.00 k	4.54 k	Braced Frame	3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N81	0.05 k	0.00 k	0.63 k	Braced Frame	3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N83	0.00 k	0.00 k	-1.68 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N85	0.00 k	0.00 k	-1.68 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N87	0.00 k	0.00 k	0.66 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N89	0.00 k	0.00 k	0.66 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N91	0.00 k	0.00 k	-1.68 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N93	0.00 k	5.30 k	-5.30 k	Braced Frame	8.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N95	0.00 k	0.00 k	4.58 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N97	0.00 k	0.00 k	0.65 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N99	0.00 k	0.00 k	-1.58 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N101	0.00 k	0.00 k	-1.61 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N103	0.00 k	0.00 k	-1.83 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N105	0.00 k	0.00 k	-1.83 k		3.00
45	ASD 16-14.1 (- Lateral)	0.6DL-WL{Trans} + WL{Trans[uplift]}	N107	0.00 k	0.00 k	-1.61 k		3.00

LC	Load Case Description		Node	Fx	Fy	Fz	Note	CF Size
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N37	-1.62 k	0.12 k	-2.57 k	Braced Frame	5.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N39	0.00 k	0.00 k	-1.64 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N41	0.00 k	0.00 k	-1.83 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N43	-1.43 k	0.00 k	-2.47 k	Braced Frame	5.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N45	0.00 k	0.00 k	-0.51 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N47	0.00 k	0.00 k	0.66 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N49	0.00 k	0.00 k	0.66 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N51	0.00 k	0.00 k	-0.63 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N53	0.00 k	0.00 k	-1.68 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N55	0.00 k	0.00 k	0.66 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N57	0.00 k	0.00 k	0.66 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N59	0.00 k	0.00 k	-1.68 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N61	0.00 k	0.00 k	-1.28 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N63	0.00 k	0.00 k	0.64 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N65	0.00 k	0.00 k	0.64 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N67	0.00 k	0.00 k	-1.28 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N69	0.00 k	-0.11 k	-1.10 k	Braced Frame	3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N71	-0.83 k	0.00 k	-0.33 k	Braced Frame	3.50
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N73	-0.77 k	0.00 k	-0.28 k	Braced Frame	3.50
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N75	0.00 k	0.00 k	-1.28 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N77	0.00 k	-0.06 k	-1.54 k	Braced Frame	3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N79	-0.99 k	0.00 k	1.98 k	Braced Frame	3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N81	-0.93 k	0.00 k	1.85 k	Braced Frame	3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N83	0.00 k	0.00 k	-1.68 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N85	0.00 k	0.00 k	-1.68 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N87	0.00 k	0.00 k	0.66 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N89	0.00 k	0.00 k	0.66 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N91	0.00 k	0.00 k	-1.68 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N93	0.00 k	0.05 k	-1.52 k	Braced Frame	3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N95	0.00 k	0.00 k	0.79 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N97	0.00 k	0.00 k	0.65 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N99	0.00 k	0.00 k	-1.58 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N101	0.00 k	0.00 k	-1.61 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N103	0.00 k	0.00 k	-1.83 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N105	0.00 k	0.00 k	-1.83 k		3.00
46	ASD 16-14.2 (- Lateral)	0.6DL-WL{Long} + WL{Long[uplift]}	N107	0.00 k	0.00 k	-1.61 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N37	0.58 k	-8.37 k	10.69 k	Braced Frame	5.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N39	0.00 k	0.00 k	3.34 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N41	0.00 k	0.00 k	9.27 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N43	0.37 k	0.00 k	4.42 k	Braced Frame	3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N45	0.00 k	0.00 k	4.28 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N47	0.00 k	0.00 k	10.06 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N49	0.00 k	0.00 k	10.06 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N51	0.00 k	0.00 k	4.42 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N53	0.00 k	0.00 k	4.57 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N55	0.00 k	0.00 k	10.16 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N57	0.00 k	0.00 k	10.16 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N59	0.00 k	0.00 k	4.57 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N61	0.00 k	0.00 k	3.72 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N63	0.00 k	0.00 k	8.24 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N65	0.00 k	0.00 k	8.24 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N67	0.00 k	0.00 k	3.72 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N69	0.00 k	-7.90 k	9.52 k	Braced Frame	5.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N71	2.20 k	0.00 k	2.53 k	Braced Frame	4.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N73	2.18 k	0.00 k	8.04 k	Braced Frame	3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N75	0.00 k	0.00 k	3.72 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N77	0.00 k	-8.31 k	10.66 k	Braced Frame	5.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N79	-2.61 k	0.00 k	4.66 k	Braced Frame	3.50
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N81	-2.71 k	0.00 k	10.63 k	Braced Frame	3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N83	0.00 k	0.00 k	4.57 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N85	0.00 k	0.00 k	4.57 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N87	0.00 k	0.00 k	10.16 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N89	0.00 k	0.00 k	10.16 k		3.00

LC	Load Case Description		Node	Fx	Fy	Fz	Note	CF Size
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N91	0.00 k	0.00 k	4.57 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N93	0.00 k	-8.87 k	10.85 k	Braced Frame	5.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N95	0.00 k	0.00 k	3.39 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N97	0.00 k	0.00 k	9.68 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N99	0.00 k	0.00 k	4.35 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N101	0.00 k	0.00 k	3.89 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N103	0.00 k	0.00 k	8.88 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N105	0.00 k	0.00 k	8.88 k		3.00
47	ASD 16-15.1 (- Lateral)	0.6DL - 0.7EL{Trans}	N107	0.00 k	0.00 k	3.89 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N37	-6.44 k	-0.25 k	0.39 k	Braced Frame	7.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N39	0.00 k	0.00 k	9.19 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N41	0.00 k	0.00 k	9.27 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N43	-6.45 k	0.00 k	0.11 k	Braced Frame	7.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N45	0.00 k	0.00 k	8.73 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N47	0.00 k	0.00 k	10.06 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N49	0.00 k	0.00 k	10.06 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N51	0.00 k	0.00 k	8.73 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N53	0.00 k	0.00 k	4.57 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N55	0.00 k	0.00 k	10.16 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N57	0.00 k	0.00 k	10.16 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N59	0.00 k	0.00 k	4.57 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N61	0.00 k	0.00 k	3.72 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N63	0.00 k	0.00 k	8.24 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N65	0.00 k	0.00 k	8.24 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N67	0.00 k	0.00 k	3.72 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N69	0.00 k	0.46 k	3.49 k	Braced Frame	3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N71	-2.69 k	0.00 k	2.44 k	Braced Frame	4.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N73	-2.70 k	0.00 k	2.00 k	Braced Frame	4.50
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N75	0.00 k	0.00 k	3.72 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N77	0.00 k	0.12 k	4.59 k	Braced Frame	3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N79	-7.58 k	0.00 k	16.85 k	Braced Frame	4.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N81	-7.58 k	0.00 k	16.67 k	Braced Frame	4.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N83	0.00 k	0.00 k	4.57 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N85	0.00 k	0.00 k	4.57 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N87	0.00 k	0.00 k	10.16 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N89	0.00 k	0.00 k	10.16 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N91	0.00 k	0.00 k	4.57 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N93	0.00 k	-0.33 k	4.69 k	Braced Frame	3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N95	0.00 k	0.00 k	9.54 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N97	0.00 k	0.00 k	9.68 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N99	0.00 k	0.00 k	4.35 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N101	0.00 k	0.00 k	3.89 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N103	0.00 k	0.00 k	8.88 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N105	0.00 k	0.00 k	8.88 k		3.00
48	ASD 16-15.2 (- Lateral)	0.6DL - 0.7EL{Long}	N107	0.00 k	0.00 k	3.89 k		3.00

Foundation Design

CIC – Detachment 24; Ft. Bliss, Texas

Footing Design:

This is a sample footing design at one location for one load case. The full design includes all load cases at each location and are summarized at the end. The base load reactions shown were determined using the RISA analysis model and are provided in the included RISA output.

Column:

N69	RISA Joint Label
35	Load Case

Description: *ASD 16-15.1 = [0.6DL + 0.7EL{Trans}]*

Loads

0.00 k	F_x
8.82 k	F_y
-2.53 k	F_z

Footing Properties

7.50 ft	Length, L
7.50 ft	Width, b
1.50 ft	Thickness, t
1.50 ft	Depth to Footing

Material Properties

0.120 kcf	Unit Weight of Soil
0.150 kcf	Unit Weight of Conc

Additional Properties

3.00	K passive
0.47	μ friction coefficient

Calculated Properties

12.66 k	Footing Weight
10.13 k	Soil Weight
0.60	DL Load Factor
13.67 k	Additional Dead Load (Factored)

Uplift Check

-2.53 k	F_z
13.67 k	Additional Dead Load (Factored)
11.14 k	Sum
OK	**Check no net uplift**

Overturning Check

1.50 ft	Footing thickness
0.00 k	F_x
8.82 k	F_y
13.23 k-ft	Max Overturning Moment (Abs)
-2.53 k	F_z
13.67 k	Additional Dead Load (Factored)
7.50 ft	Footing Width
3.75 ft	Dead Load Moment Arm
41.77 k-ft	Restoring Moment
3.16	Ratio
OK	**Check Restoring > Overturning**

Sliding Check

-2.53 k	F_z
13.67 k	Additional Dead Load (Factored)
11.14 k	Sum of Vertical Load
0.47	μ friction coefficient
5.23 k	**Frictional Resistance**
0.120 kcf	Unit Weight of Soil
3.00	K passive
1.50 ft	Footing thickness
1.50 ft	Depth to Footing
1.22 k	**Maximum Passive Resistance**
0.00 k	F_x
8.82 k	F_y
8.82 k	**Maximum Lateral Force**
6.44 k	**Total Resistance**
0.73	Ratio
NG	**Check**

**Engr Note: Since this foundation is integral with the continuous strip footings and walls around the perimter, this sliding calculations is overly conservative. Based on the actual conditions, the sliding is ok.*

Bearing Check

7.50 ft	Footing Width
3.75 ft	y - Moment Arm
263.67	I - Moment of Inertia
56.25 ft²	A - Area
1.50 ft	Footing thickness
0.00 ft	F_x
8.82 ft	F_y
13.23 k-ft	Max Overturning Moment (Abs)
-2.53 k	F_z
13.67 k	Additional Dead Load (Factored)
11.14 k	Total P
0.20 ksf	P/A
0.19 ksf	My/I
0.39 ksf	P/A + My/I
0.01 ksf	P/A - My/I
0.39 ksf	**Max Bearing pressure**
OK	Check no net tension
OK	Check net bearing pressure < 2.5 ksf
OK	**Bearing Check**

Conclusion:

OK	Uplift Check
OK	Overturning Check
NG	Sliding Check * (See Note)
OK	Bearing Check
NG	**Overall Check * (See Note)**

Use CF 7.5 Spread footing at node N69 (unless another load case has a greater requirement)

Overall Summary		
Node	*CF Sze*	
N37	CF 7.5	Braced Frame
N39	CF 5.0	
N41	CF 4.0	
N43	CF 6.5	Braced Frame
N45	CF 3.5	
N47	CF 4.0	
N49	CF 4.0	
N51	CF 3.5	
N53	CF 3.0	
N55	CF 4.0	
N57	CF 4.0	
N59	CF 3.0	
N61	CF 3.0	
N63	CF 3.5	
N65	CF 3.5	
N67	CF 3.0	
N69	CF 7.5	Braced Frame
N71	CF 5.0	Braced Frame
N73	CF 5.0	Braced Frame
N75	CF 3.0	
N77	CF 7.5	Braced Frame
N79	CF 5.0	Braced Frame
N81	CF 5.0	Braced Frame
N83	CF 3.0	
N85	CF 3.0	
N87	CF 4.0	
N89	CF 4.0	
N91	CF 3.0	
N93	CF 7.5	Braced Frame
N95	CF 4.0	
N97	CF 4.0	
N99	CF 3.0	
N101	CF 3.0	
N103	CF 4.0	
N105	CF 4.0	
N107	CF 3.0	

APPENDIX D

ELECTRICAL CALCULATIONS

CORRECTED FINAL SUBMISSION
12 SEPTEMBER 2012

Criminal Investigation Command
Field Operations Building
Detachment 24
Adapt-Build
Fort Bliss, TX

Company name
465 Spring Park Place
Herndon, VA 20170

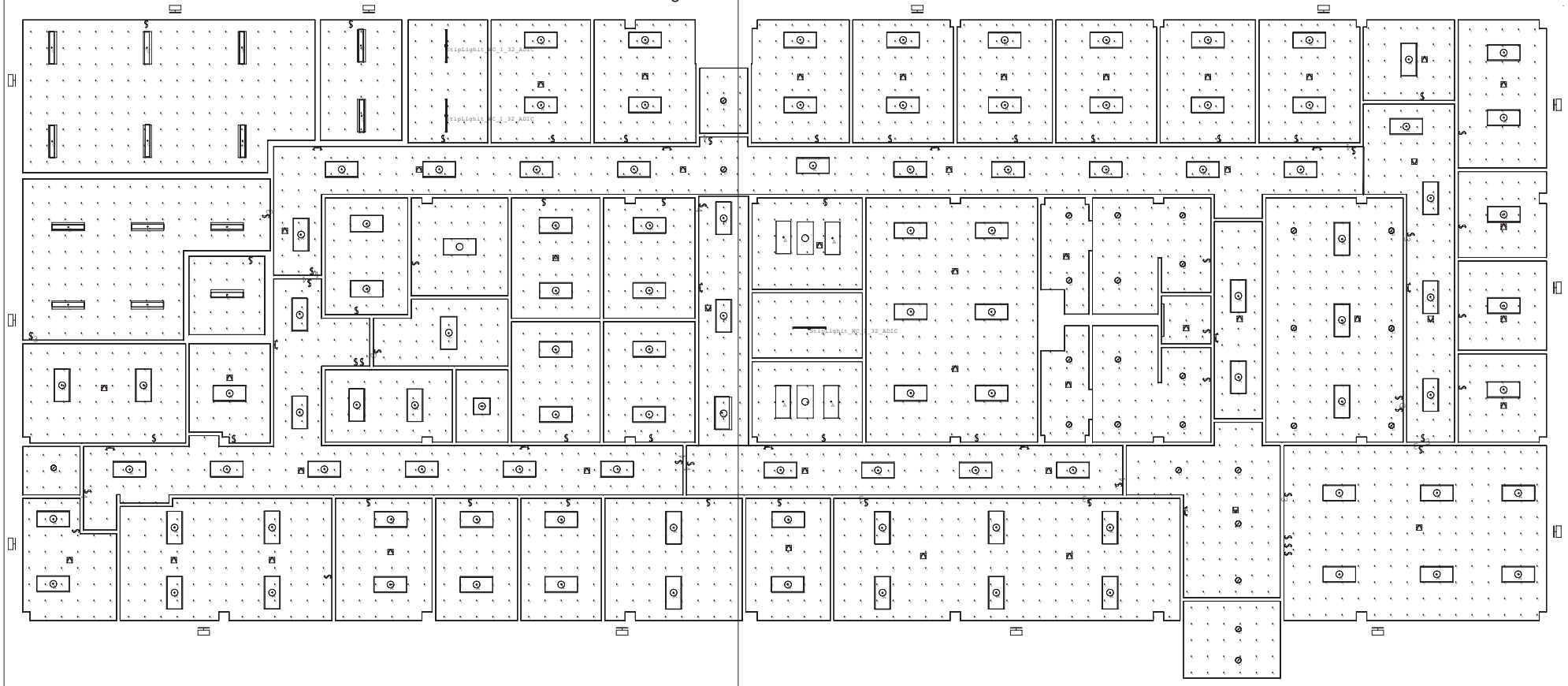
Date:6/21/2012

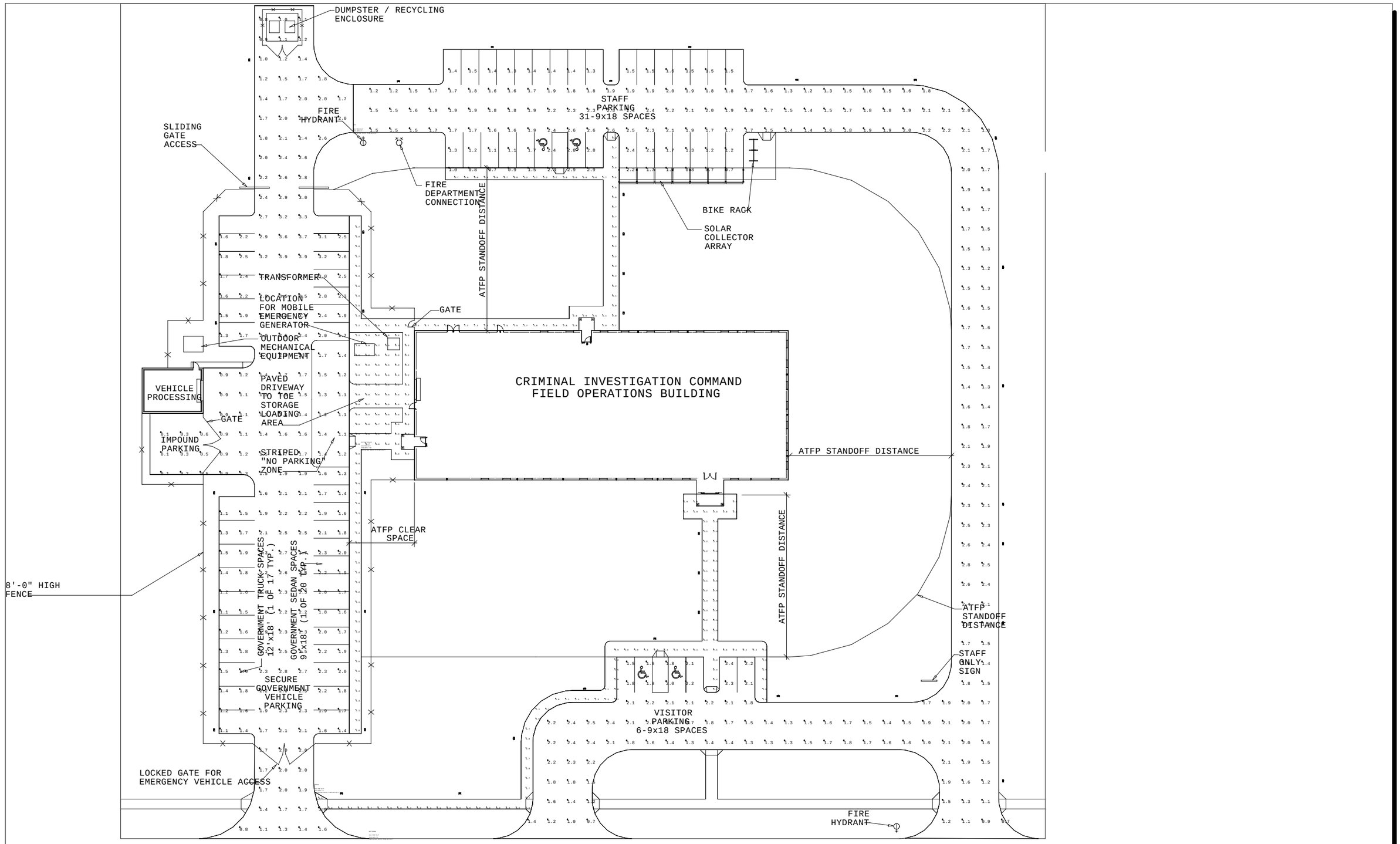
Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
001 - Entry Vestibule_Floor	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
002 - Vestibule West_Floor	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
003 - Vestibule_Floor	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
101 - Visitor Waiting_Floor	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
102 - Corridor_Floor	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
103 - Janitor_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
104 - Women_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
104B - Women Shower_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
105 - Men_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
105B - Men Shower_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
106 - Drug Sup Team Office_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
107 - Multipurpose Lounge_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
108 - CIC Office_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
109 - Telecomm_Floor	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
110 - Small Interview_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
111 - Corridor_Floor	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
112 - Drug Suppression Team Lead	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
113 - Large Interview_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
114 - Corridor_Floor	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
115 - Sto & Supply_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
116 - Small Interview #4_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
117 - Small Interview #3_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
118 - Secure Storage_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
119 - Corridor_Floor	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
120 - Small Interview #2_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
121 - Small Interview #1_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
122 - Evidence Custodian_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
123 - Evidence Depository_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
124 - Duty Agent_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
125 - Suspect Waiting_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
126 - Suspect Toilet_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
127 - Observation_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
128 - Polygraph Exam_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
129 - Polygraph Office_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
130 - Photo ID Room_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
131 - Evidence Processing_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
132 - TOE_Floor	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
133 - Arms Vault_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
134 - Mech_Floor	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
135 - Elec_Floor	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
136 - Telecom_Floor	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
137 - SP AG Office_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
138 - SP AG Office_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
139 - Corridor_Floor	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
140 - SP AG Office_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
141 - SP AG Office_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
142 - SP AG Office_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
143 - SR TM Office_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
144 - SR TM Office_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
145 - SUP TM Office_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
146 - CRI INV Office_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
147 - Corridor_Floor	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
148 - SP AG in CHARGE Office_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
149 - CRI INTEL Office_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
150 - INVEST OP TECH Office_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
151 - INVST OP TECH Office_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
152 - Conference_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.
153 - Admin_Workplane	Illuminance	Fc	0.00	0.0	0.0	N.A.	N.A.

Criminal Investigation Command
Field Operations Building
Detachment 24
Adapt-Build
Fort Bliss, TX

Parsons Brinckerhoff
465 Spring Park Place
Herndon, VA 20170

Date:6/21/2012




DUMPSTER / RECYCLING ENCLOSURE
FIRE HYDRANT
STAFF PARKING 31-9x18 SPACES
SLIDING GATE ACCESS
FIRE DEPARTMENT CONNECTION
ATFP STANDOFF DISTANCE
BIKE RACK
SOLAR COLLECTOR ARRAY
TRANSFORMER
LOCATION FOR MOBILE EMERGENCY GENERATOR
GATE
OUTDOOR MECHANICAL EQUIPMENT
CRIMINAL INVESTIGATION COMMAND FIELD OPERATIONS BUILDING
VEHICLE PROCESSING
PAVED DRIVEWAY TO TOE STORAGE LOADING AREA
GATE
IMPOUND PARKING
STRIPED "NO PARKING" ZONE
ATFP STANDOFF DISTANCE
ATFP CLEAR SPACE
ATFP STANDOFF DISTANCE
8'-0" HIGH FENCE
GOVERNMENT TRUCK SPACES 12'x18' (1 OF 17 TYP.)
GOVERNMENT SEDAN SPACES 9'x18' (1 OF 20 TYP.)
ATFP STANDOFF DISTANCE
STAFF ONLY SIGN
SECURE GOVERNMENT VEHICLE PARKING
VISITOR PARKING 6-9x18 SPACES
LOCKED GATE FOR EMERGENCY VEHICLE ACCESS
FIRE HYDRANT
PRIMARY ACCESS ROAD

Calculation Summary						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
North Roadway_Planar	Fc	1.76	2.9	0.7	2.51	4.14
North West Sidewalk_Planar	Fc	1.29	3.6	0.2	6.45	18.00
South East Sidewalk_Planar	Fc	1.95	2.8	0.9	2.17	3.11
West Roadway_Planar	Fc	1.86	3.9	0.1	18.60	39.00

APPENDIX E

ENERGY MODELING

CORRECTED FINAL SUBMISSION
12 SEPTEMBER 2012

Energy Modeling Approach and Simulation Parameters

(This process is specifically written to address the Detachment 24 Building, however the process for modeling the other three buildings is essentially the same.)

Comparison

The "Alternative 1" is set up as the Baseline Alternative, which complies with ASHRAE 90.1-2007. "Alternative 2" and "Alternative 3" are set up as Design Alternatives. The form, fabric, and system information between "Alternative 2" and "Alternative 3" is the same. The two Design Alternatives differ in the primary cooling plant – "Alternative 2" uses a cooling tower and "Alternative 3" uses an air-cooled chiller.

Per ASHRAE 90.1-2007 requirements, the following are included in the model:

- Energy parameters are set to calculate 8760 simulation hours.
- Alternative 1 is set as the "Base Alternative" for "Economic comparison."
- Alternative 1 is set as the "Base Alternative" for "Performance rating method" and Alternative 1 is set to "Rotate and average PRM results."

Weather Data

The weather data is taken from the Department of Energy website as a *.bin file, changed to a *.tmy file, and imported into the Trane TRACE 700 weather library.

Weather overrides have been set for the 1% ASHRAE Summer Design Cooling and 99.6% for the Winter Design Heating, per ASHRAE 90.1-2007 energy simulation requirements.

Energy Cost Rates

Annual energy costs are determined using state average unit prices from EIA, which is updated annually on EIA's website (www.eia.doe.gov).

Schedules and Internal Loads

Schedules are set to model hourly variations in occupancy, lighting power, miscellaneous equipment power, and HVAC system operations, and are defined separately for each day of the week and holidays per ASHRAE 90.1-2007 requirement. Modeling the thermostat set points is explained below.

Occupancy

The expected occupancy for the CIDC building is from 0630 to 2000. Due to TRACE's limitations dealing with fractional hours, the hours from 0600 to 0700 are staffed at 50 percent, and the hours from 0700

to 2000 are staffed at 100 percent for Monday to Sunday and 0 percent from midnight to midnight for holidays. Occupancy is defined room-by-room according to the Standard Design Criteria.

Lights

The lighting schedule is set to match the occupancy schedule with the exception that during unoccupied hours, the lighting power is set to 5 percent to account for emergency lighting. In the Baseline Building, the lighting power density is defined at the template level. In the Design Alternatives, the lighting power density is defined at the room level as the lighting power density requirements are satisfied via Space-by-Space Method.

In the design alternatives, the lighting power densities are reduced by 10% for any space that has occupancy sensors, per ASHRAE 189.1 requirements for energy modeling.

Miscellaneous Equipment

This loading is defined with the Occupancy Schedule. Miscellaneous equipment defines receptacle loads, exclusively. Area-based loading is derived from ASHRAE 90.1-1989 and is assumed to be 0.75 W/sf.

Ventilation

Vent schedules match the occupancy schedule as the intent is to close outdoor air dampers during unoccupied mode, and the system shall re-circulate air to maintain temperature drift points.

The Design Alternatives apply ASHRAE 62.1 ventilation requirements on a template and room level. The template defines the typical space-type as “Office space” and any rooms that deviate from this space-type are defined at the room level. The option to “Apply ASHRAE Std 62.1-2004/2007” is selected and the “System Ventilation Flag” is set to “ASHRAE Standard 62.1-2004/2007.” This sets the program to use equations from ASHRAE 62.1 to calculate the system-level ventilation requirement, based on the room ventilation requirements. Per ASHRAE 90.1, demand control ventilation (DCV) is required for the Command Conference Room, Multi-purpose Lounge, Large Interview Room (Room 281), and Suspect Waiting Room. These rooms are served by the Primary and Secondary VAV Systems, therefore, these two systems have their “System Ventilation Flags” set to “ASHRAE 62.1-2004/2007 w/ Vent Reset.” Proportional control is selected allowing the outdoor air controller to adjust the outdoor air intake flow proportionally between the minimum ventilation flow and the design ventilation flow.

Zone distribution effectiveness for cooling is defined as 100 percent based on a ceiling supply and ceiling return and 100 percent for heating assuming the “worst case scenario” for a ceiling supply and ceiling return.

ASHRAE 90.1, G3.1.2.5 requires that ventilation rates for the Baseline and Design Alternatives be the same. In order to ensure this requirement, the Baseline Building ventilation rates are determined by taking the total ventilation requirement for all systems in the design case, totaled, and divided by the building area. This provides for a ventilation rate per area for the Baseline Building. The application of ASHRAE 62.1 Standard is disabled, and the ventilation rates previously calculated are applied for cooling

and heating modes. At the system level, the “System ventilation flag” is defined as “Sum Room OA Reqs.” This sets the program to sum the (user-defined) individual room ventilation requirements to calculate the system-level ventilation requirement.

In both Baseline and Design Alternatives, “people-averaging” is not used – the ventilation rates are based on highest, user-defined occupancy.

Room exhaust rates are calculated based on ASHRAE 62.1 requirements and are the same in the Baseline and Design Alternatives.

Thermostat Set Points

Schedules are not defined for thermostat set points. Cooling and heating dry bulb temperatures, relative humidity, and cooling and heating drift points are defined. TRACE allows the room temperature to drift to the user-defined temperature drift point during the hours in which the Occupancy Schedule reads 5 percent or less; if the Occupancy Schedule reads greater than 5 percent, the thermostat will try to control the room to the design room dry bulb temperature.

Thermostat sensors are located at the zone level per ASHRAE 90.1, Section 6.4.3.1.1.

Building Form

The “Spaces” in Autodesk Revit bring door, window, wall, partition, roof, and floor information into Trane TRACE via gbXML.

The National Renewable Energy Laboratory (NREL) published a report on the typical infiltration rates for large office buildings based on ASHRAE 90.1-1989, the latest version which includes infiltration requirements. Since air barrier requirements are introduced in ASHRAE 90.1-2010 and 189.1-2009, tests were performed on large office buildings to compare results. The infiltration rates are labeled in terms of air changes per hour. The 1989 values are used as the baseline infiltration and the 2010 values are used as the design. The maximum infiltration rates (which occur during non-operating hours), for the baseline and design, are modeled for perimeter zones and for the core zones. A “Utilization Schedule” is created to step down the infiltration rates by a specified percentage during occupancy. The schedule is applied to all spaces, and each space is distinguished by perimeter zone or core zone. This set-up simulates a lower infiltration rate during occupancy, and the design case models a lower all-around infiltration rate based on the envelope requirements from ASHRAE 90.1-2010 and 189.1-2009.*Roofs*

Roof area and orientation is determined by projecting the roof line over a floor plan layout and determining the projected area of the roof over each space and is divided according to orientation. The actual area is determined by developing a multiplication factor from the cosine-based relationship between the projected area and the actual roof area. The angle for this calculation is determined by converting the slope, 4:12, to degrees. The pitch angle is taken from the vertical plane and rotates toward the sky; therefore the 4:12 slope from the 90° vertical plane gives TRACE’s roof pitch.

The TRACE program is limited in accurately modeling a building with an attic space, so a substitute is provided. The heat transfer from the roof to the plenum is modeled as a single construction element – the roof is modeled with roof components and the gypsum board and insulation layers separating the attic and the plenum.

Shading Devices

The shading devices modeled are unique to each building. This device is applied over window opening in the exterior wall.The Battalion HQ shading device is modeled as equivalent to the design intent by considering the Projection Factor for the designed shading device and applying a shading device that provides the same Projection Factor. Per ASHRAE 90.1 requirements, the shading device is applied only to the Design Alternative; manual internal shading devices are not modeled in either the Baseline Building or the Design Alternatives.

Walls

Walls are derived from the “Spaces” created in the Revit model. Adjacencies (or absence of) define interior and exterior walls. Partitions are defined at the template level to have a miniscule U-factor (U=10^-7) to negate the estimation of heat transfer across partitions – this prevents the system coils sizing from being affected by a non-existent load.

Floors

ASHRAE 90.1 provides a minimum F-value (the perimeter heat loss factor for slab-on-grade, expressed in Btu/h·ft·F°) whereas the TRACE input is in the form of a U-value. The conversion is determined by calculating heat loss with the F-value and dividing by area of slab to acquire loss per square foot.

Building Fabric

Per ASHRAE 90.1 requirement, the model is set to calculate heat loss/gain for heat transfer via conduction, internal loads, or solar through the time delay based on actual mass – the program calculates the room specific mass (in lb/sf of floor area).

Custom library construction types are built specifically for this project… The Baseline Building is modeled with envelope values defined by ASHRAE 90.1 for the appropriate Climate Zone. Per ASHRAE 90.1 requirements, the construction types mandated for the Baseline model are as follows: Roofs – Insulation entirely above deck, Above-grade walls – Steel-framed. Slab-on-grade floors shall match the F-factor for unheated slabs from the same tables.

Per ASHRAE 90.1 requirements, all roof surfaces in the Baseline Building are modeled with a reflectivity of 0.30. This translates to TRACE by defining the “Outside shortwave (solar) absorptivity” as 0.7.

Systems

Baseline Building

According to ASHRAE 90.1, the Baseline Building system is a constant volume Packaged Single Zone Air Conditioner with a Fossil fuel furnace. ASHRAE 90.1 requires that for this system, each thermal block is modeled with its own HVAC system. The Baseline Building system in TRACE is the "Single Zone" under the "Constant Volume – Non-mixing" system category. This system has supply fans ("cooling fan") and heating and cooling coils at the zone level and a return fan at the system level.

ASHRAE 90.1 Table G.3.1.2.6A indicates that air-side economizers are required to be modeled in the Baseline Building for the project's climate zone, 3B. Table G.3.1.2.6B states that the high-limit shutoff temperature for the climate zone is 75°F DB. This is addressed in …

On the Energy Parameters dialog box, the "Apply ECB/PRM rules to fan sizing" option is checked and ASHRAE 90.1-2007 is selected from the drop-down menu. This tells TRACE uses the rules stipulated in Section G3.1.2.9 to calculate fan energy rate for energy analysis. This supersedes the fan full load energy rates input on the "Fans" tab under "Create Systems." The fan cycling schedule is set to cycle with all loads, as defined on the "Fans" tab.

Section G3.1.2.8 states that system design supply airflow rates for the Baseline Building shall be based on a supply air/room air temperature difference of 20°F. The thermostat settings for cooling dry bulb and heating dry bulb are 75°F and 70°F, respectively, so in the "Temp/Humidity" tab under "Create Systems," the cooling supply air max and min are set to 55°F and the heating supply air max and min are set to 90°F.

The Baseline Building coil capacities are set to 115% and 125% of the design capacity for the cooling and heating coils, respectively. Should the number of unmet load hours for Design Alternative exceed the Baseline Building by more than 50, simulated capacities in the Baseline Building shall be decreased incrementally and the building re-simulated until the unmet load hours are within 50 of the unmet load hours of the proposed design. If unmet load hours for the Design Alternative or Baseline Building exceed 300, simulated capacities shall be increased incrementally, and the building with unmet loads re-simulated until unmet load hours are reduced to 300 or less.

Design Alternative1

Central systems include the two VAV systems – one which serves the "Administrative Areas" of the building and the other serving the "Special Uses Area" of the building. The system type is variable air volume with baseboard heating about the exterior zones. The Administrative Area system is labeled "Primary – VAV w/ BB" and the Special Uses system is labeled "Secondary – VAV w/ BB." A central fan, optional exhaust/return fan, preheat coil, and cooling coil is defined at the system level. Baseboard heaters and VAV terminals (auxiliary fans) are defined at the zone level. The TRACE program begins the simulation by calculating what effect the operation of the OA-controlled baseboard units will have on the room's drift temperature. This heat output is determined by the outdoor air reset schedule. For these systems, the "Reset per worst case room" is set to "Off" and "Use system default outside air reset" is checked – the system default to a reset schedule defined for the system type. In this system, the default reset schedule assumes that the output of the baseboard units is proportional to the room heating-thermostat-to-outside-air temperature difference. During setback periods, the baseboard

heating output is modulated downward proportionally to the amount of degrees setback from the daytime heating setpoint. The heat output of the OA-controlled baseboard unit adds additional heat gain to the space to offset the conduction heat loss. When the drift temperature rises above the hour's cooling thermostat set point, the VAV box opens and delivers a proportionate quantity of supply air to the space – enough cool supply air to bring down and maintain the space temperature according to the thermostat setpoint. So long as the room drift temperature is below the cooling thermostat setpoint this hour, the VAV box is fully closed. While the drift temperature is within the dead band region, there is no air movement and absolutely no cooling can be provided by the main system VAV box. Should the skin heating system not supply enough heat to satisfy the space heating load, the drift temperature will fall below this hour's heating thermostat setpoint.

These systems have air-side economizers set to monitor outdoor dry-bulb temperature.

Spaces that require heating only, i.e. vestibules, are handled by the "Unit Heaters" system type under the "Heating Only" system category. The system is labeled as "CUHs – Vestibules." The system schematic defines a fan and heating coil at the zone level. Each of the individual vestibules and the mechanical rooms are assigned to their own individual zones, therefore TRACE assigns a fan and heating coil to each room. The vestibules have no ventilation requirements set at the rooms, so the coil does not factor in condition ventilation air.

In order to satisfy the ventilation requirements for the Electrical Room, the "Ventilation and Heating" system type is applied (under the "Heating Only" system category). The system is labeled as "FCU – Elec," and the fan and heating coil are set to the system level, therefore only the Electrical Room is applied to this system. The system supplies a constant volume of heated supply air and the heating coil is cycled to meet varying loads. When heating is not needed, the system attempts to bring the space temperatures down using unconditioned ventilation air. The "Return Air Path" is defined as being a "Plenum" return. This allows TRACE to account for loads from the roof, lights, etc in the return air going to the system. The requirement for satisfying cooling is ventilation air, so the room is set to 10 air changes per hour. TRACE does not recognize this air flow rate as ventilation air.

This same system is set up for the Mechanical Room, since the Mechanical Room will have its own dedicated fans and coils. The requirement for satisfying cooling is ventilation air, so the room is set to 6 air changes per hour. TRACE does not recognize this air flow rate as ventilation air.

The Evidence Depository Room requires separate heating, cooling, and ventilation. This is satisfied with the "Fan Coil" system type under the "Constant Volume – Non-mixing" system category. The system is labeled "FCU – Evid Dep" and consists of a zone level fan and heating/cooling coil. TRACE treats this system as a separate fan coil unit, including a fan, cooling coil, and heating coil, located in each room. The program assumes that the fan coil unit is a four-pipe arrangement with heating and cooling coil available year-round. The unit supplies a constant volume of conditioned air to the room, and the coils are cycled to meet the varying load. When the room drift-temperature rises above the room heating thermostat, the heating coil is de-activated, allowing the space temperature to drift upward. Since the supply air will be at the return/outside air dry bulb temperature, scheduling outside air into the space

will temper this effect to some degree. When the room drift-temperature drops below the room heating thermostat, the heating coil is modulated to produce a supply air dry bulb temperature that will bring the room temperature up to the heating thermostat.

Telecommunications Rooms 1 and 2 have similar system setups. These rooms are modeled with separate systems because Telecomm Room 1 does not utilize a cooling coil, and so the cooling coil is placed on a "DUMMY" plant, and the plants will be sized separately according to the load it needs to handle.

The TRACE program requires all spaces to be assigned to systems and all system components to be assigned to a plant regardless of whether the space is being conditioned. This includes interstitial spaces. To circumvent adding additional energy consumption by the system that will not "see" the space, a "DUMMY" system is set in place in which these spaces will be assigned. The particulars on how energy circumvention takes place at the plants set for this system.

Design Alternative 2

The second design alternative differs in the Primary and Secondary System selection—rather than VAV with Skin Baseboard Heating, the systems are set as Fan-Powered Terminal Units with Reheat on the plenum inlet. The other system settings remain unchanged from the first design alternative.

Daylighting Controls

Daylighting controls are utilized throughout all perimeter spaces with windows. To model this, a "Daylighting Controls Definition" is created. Geometry, daylighting control type, room parameters, glass, construction, and internal shade parameters are set here for all Alternatives. The Baseline Building is modeled with no daylighting controls and the Design Alternatives have daylighting controls available, 100%. Daylighting that is added to a space that has no fenestration is ignored by the program. The daylighting controller is the "Std Stepped Controller" template. This controller is added to the "Daylighting Reference Pt 1" under the "Room Parameters" tab.

Plants

Plant capacities are not user-defined. When the value is left blank, TRACE automatically determines plant capacity by summing the coil capacities attached to the plant. The "Equipment type" and "Heat rejection type" determines the equipments' unloading curves and fundamental energy rates. These pieces of equipment use "Standard" curve types – this selection indicates that a combination of ARI unloading curves and an ambient modification curve will be used to determine the power consumed at each of the hourly load conditions.

Baseline Building

According to ASHRAE 90.1 requirements, the cooling and heating plants for this project size is direct expansion cooling and fossil fuel furnace heating. The plants are labeled as "Cooling plant – 001" and

"Heating plant – 002." The cooling plant has an "air-cooled unitary" piece of equipment attached with an air-cooled condenser. The heating plant has a "gas-fired heat exchanger" attached.

The cooling equipment type is defined as the "90.1-07 Min PTAC New Cons > 15 MBh Cap." The sequencing type is defined as "Single" as there is only one piece of equipment that handles the entire cooling load. The equipment is set to reject condenser heat to the "heat rejection equipment," i.e. the air-cooled condenser. The heat rejection equipment is defined as a "90.1 Min Air Cooled Condenser." The energy rate is defined by TRACE's library of minimum efficiency values from ASHRAE 90.1.The heating equipment is defined as the "90.1-07 Min Gas Furnace < 225 MBh." The energy rate is defined according to the ASHRAE 90.1 requirements.

Design Alternatives 1

The Design Alternatives are set up with a main cooling plant and a main heating plant. These are labeled as "Cooling plant – 001" and "Heating plant – 002," respectively. Addition cooling plants are in place to handle cooling equipment not addressed by the main cooling plant, e.g. direct expansion for a stand-alone system. "DUMMY" plants are in place to host the "DUMMY" systems required to satisfy TRACE's requirement for every coil to be hosted by a plant without affection equipment and plant capacity calculations. The "DUMMY" plants are scheduled to "Off" – the equipment is arbitrarily defined as the equipment will not be functioning and therefore do not affect the load or energy consumption.

In the first Design Alternative (TRACE Alternative 2: Design w/ CT), the equipment type is a "water-cooled unitary" unit with a "cooling tower" and "condenser water pump." The equipment type is defined as "90.1-07 Min Other Heat SS/SP 135-240 MBh." Sequencing type is "Single" since there is one water-cooled unit. The equipment is set to reject condenser heat to the "Heat rejection equipment," the "90.1 Min Cooling Tower."

To ensure maximum effectiveness of the fan coil unit systems, a "Micro-Chiller" plant is modeled to satisfy the cooling load for those spaces. The Micro-Chiller rejects its heat to the Cooling Tower. TRACE is currently incapable of applying systems to specific plant components, so modeling the Micro-Chiller under the same plant as the water-cooled unitary equipment is not feasible. To get the performance benefit of running rejecting heat to an otherwise running cooling tower, the Micro-Chiller plant load is specified to exceed 50% of the total system load. This way, the cooling tower is modeled separately from the cooling tower assigned to the water-cooled unitary equipment, but mimics the heat rejection equipment performance as if the water-cooled unitary equipment and the Micro-Chiller were utilizing the same cooling tower.

The RA 5-9 and the Detachment 24 each have one boiler. The Battalion HQ and the RA 10-15 have two pieces of equipment under the "Heating plant – 002"–both of which are labeled as boilers ("Boiler – 002" and "Boiler – 003"). The two-boiler plants are set so TRACE sizes them to 60% of the total heating load.

Design Alternative 2

The plant used in the second design alternative is an “Air-Cooled Chiller.” Since a chiller is modeled as the primary plant, a Micro-Chiller is not required for the alternative.

Secondly, the loads satisfied by the Micro-Chiller in the first design alternative are distinguished. There are two “air-cooled unitary” units with “air-cooled condenser” units – one of which applies to the Evidence Depository and the other to the Telecommunications Room 2, as these systems are using direct expansion cooling. These are labeled as “Air-cooled condenser – Evid Dep” and “Air-cooled condenser – TR#2.” These units’ equipment types are set to “90.1-07 Min Room AC w/o louvers < 8MBh.”

Base Utilities

Base utilities are used to model loads that are not otherwise calculated by the TRACE program. These loads include exterior lighting and domestic hot water load. To model these loads, the hourly demand, plant (source), and load schedule is specified.

Exterior Lighting

The ext lighting is defined through creating a new "base utility" in TRACE. The requirement for ASHRAE/LEED is to calculate power consumption for the year. ASHRAE requires that the lighting is controlled by a combination of photo sensors and time switches, depending on whether the system is set for dusk-to-dawn operation. This will be handled by creating a new schedule for this base utility. The schedule parameters will be based on the Equinox, so the average amount of daylight for each hour through the span of 24 hours will be proportional to the amount of energy consumed by the ext lighting in the same span of 24 on each hour on a daily basis for an entire year. Using this approach will give accurate energy consumption by the ext lighting for the year, but the estimated energy consumption on a monthly basis is constant, which is not accurate.

The domestic hot water load is modeled as a base utility labeled “Domestic Hot Water Load.” In the Design Alternative, the plant satisfying the load is “Heating plant – 002.” This plant uses a combination of the boiler and solar hot water system to satisfy the load. The Baseline Building uses a separate plant to represent the domestic hot water heater. This equipment type is labeled as “90.1-04 Min (Res) 300-2,500 Mbh.” In both the Baseline Building and the Design Alternative, the hourly demand is the same and the schedules are both set to the occupancy schedule, “People – CIC Det24 Full Year.”

The solar hot water (SHW) system is modeled as a base utility with a negative demand—the domestic water load and heating load covered by the “Heating plant – 002” is credited by the base utility. The maximum capacity of the SHW system is determined based on highest solar insolation value for a fixed number of solar hot water panels. The subsequent monthly capacities are determined based on month’s solar insolation value, the total hours of daylight in a day (determined by parallel for the 20th of each month, based on the solstice), and the number of panels. After the capacity of the SHW system is determined for each month, each month is represented as a percentage of the maximum capacity and is input in a “Utilization Schedule.” Each month is modeled with approximate times of sunrise and sunset for the respective month with the percentage of maximum capacity—the percent capacity is defined

between sunrise and sunset and zero from sunset to sunrise. This schedule is applied to the base utility to credit the “Heating plant – 002” the appropriate amount of load throughout the year.

End of Summary

	Collector Info					Domestic Hot Water			Space Heating							Renewable Energy Production	
Month	Insolation Value (BTU/sf*day)	Day to Month Conversion	DHW flat plate collector area (sf)	System Capacity (BTU/month)	Effective System Capacity (BTU/month)	Domestic Hot Water Load per Day (BTU/day)	Domestic Hot Water Load per Month (BTU/month)	Extra Capacity not used by DHW Load (BTU/month)	Peak Heating Load (BTU/h)	HDD per Month	Assumed Indoor Temperature (°F)	Outdoor Air Temperature (°F)	Heating Requirement (BTU/month)	Heating Requirment for the Month (kBTU)	DHW + Space Heating Requirement (BTU/month)	SHW Capacity Credited to DHW Load (BTU/month)	Extra Capacity Credited to Space Heating (BTU/month)
Jan	1125.1	26	401.5	11744919	10570427	644015	16744390	-6173963	55994	632	68	22.6	18707423	18707	35451813	10570427	0
Feb	1480	24	401.5	14261280	12835152	644015	15456360	-2621208	55994	424	68	22.6	12550549	12551	28006909	12835152	0
Mar	1909.3	27	401.5	20697767	18627990	644015	17388405	1239585	55994	272	68	22.6	8051296	8051	25439701	17388405	1239585
Apr	2363.5	25	401.5	23723631	21351268	644015	16100375	5250893	55994	100	68	22.6	2960035	2960	19060410	16100375	2960035
May	2600.6	27	401.5	28191804	25372624	644015	17388405	7984219	55994	8	68	22.6	236803	237	17625208	17388405	236803
Jun	2682.5	26	401.5	28002618	25202356	644015	16744390	8457966	55994	0	68	22.6	0	0	16744390	16744390	0
Jul	2450.1	26	401.5	25576594	23018935	644015	16744390	6274545	55994	0	68	22.6	0	0	16744390	16744390	0
Aug	2284.5	27	401.5	24765122	22288610	644015	17388405	4900205	55994	0	68	22.6	0	0	17388405	17388405	0
Sep	1987.1	25	401.5	19945516	17950965	644015	16100375	1850590	55994	9	68	22.6	266403	266	16366778	16100375	266403
Oct	1639	27	401.5	17767580	15990822	644015	17388405	-1397583	55994	89	68	22.6	2634431	2634	20022836	15990822	0
Nov	1243.7	26	401.5	12982984	11684686	644015	16744390	-5059704	55994	386	68	22.6	11425736	11426	28170126	11684686	0
Dec	1030.7	26	401.5	10759477	9683530	644015	16744390	-7060860	55994	623	68	22.6	18441020	18441	35185410	9683530	0

SHW System Information					Price of Gas Replaced by Renewable Energy				Payback
Number of Panels	Area per Panel (sf)	System Heat Loss Factor	Price per Unit ($/sf)	Install Cost	Total System Use (kBTU)	Energy Conversion (1 Therm = 100 kBTU)	Cost ($/therm)	Total Cost per Year	Length (years)
10	**40.15**	**0.9**	**$72.00**	**$28,908.00**	**183322**	**0.01**	**$0.69**	**$1,269.15**	**23**

Total System Use (kBTU)	183322	
Building Conditioned Area (sf)	13172	
Annual Renewable Energy Production	**13.92**	**kBTU/sf**

CIC Detachment 24 Adapt-Build Prototype

Location	**Fort Bliss, TX**	
Building owner	**US Army Corp of Engineers**	
Program user	**JPB**	
Company	**Parsons Brinckerhoff**	
Comments	**TRACE 700 v6_2_7 - gbXML imported on Wednesday, December 14, 2011 at 03:40 PM**	
By	**PB**	
Dataset name	**C:\Documents and Settings\bouley\Desktop\TRACE Docs\CIDC\Det 24\Det24_120515\DET24_120817.TRC**	
Calculation time	**03:26 PM on 08/30/2012**	
TRACE® 700 version	**6.2.7**	
Location	**El Paso Intl AP**	
Latitude	**31.8**	**deg**
Longitude	**106.5**	**deg**
Time Zone	**7**	
Elevation	**3,608**	**ft**
Barometric pressure	**26.2**	**in. Hg**
Air density	**0.0664**	**lb/cu ft**
Air specific heat	**0.2444**	**Btu/lb·°F**
Density-specific heat product	**0.9746**	**Btu/h·cfm·°F**
Latent heat factor	**4,289.9**	**Btu·min/h·cu ft**
Enthalpy factor	**3.9869**	**lb·min/hr·cu ft**
Summer design dry bulb	**99**	**°F**
Summer design wet bulb	**64**	**°F**
Winter design dry bulb	**22**	**°F**
Summer clearness number	**1.00**	
Winter clearness number	**1.00**	
Summer ground reflectance	**0.20**	
Winter ground reflectance	**0.20**	
Carbon Dioxide Level	**400**	**ppm**
Design simulation period	**January - December**	
Cooling load methodology	**TETD-TA1**	
Heating load methodology	**UATD**	

System Checksums

By PB

Default System — **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	24	0	24	45
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	2		2	3
Sub Total ==>	26	0	26	49
Internal Loads				
Lights	0	0	0	0
People	0	0	0	0
Misc	0	0	0	0
Sub Total ==>	0	0	0	0
Ceiling Load	0	0	0	0
Ventilation Load	0	0	27	50
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	-1
Sup. Fan Heat			1	1
Ret. Fan Heat		1	1	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	26	0	53	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	25	93
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	2	7
Sub Total ==>	27	100
Internal Loads		
Lights	0	0
People	0	0
Misc	0	0
Sub Total ==>	0	0
Ceiling Load	0	0
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
***Grand Total* ==>**	27	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	-23	-23	24.94
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-5	-5	4.85
Sub Total ==>	-28	-28	29.80
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	0	0	0.00
Ventilation Load	0	-46	49.34
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		-13	14.34
RA Preheat Diff.		-6	6.52
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-28	-93	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	92.1
Ra Plenum	75.0	70.0
Return	75.3	70.0
Ret/OA	93.4	40.8
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	2	2
Terminal	2	2
Main Fan	2	2
Sec Fan	0	0
Nom Vent	1	1
AHU Vent	1	1
Infil	0	0
MinStop/Rh	0	0
Return	2	2
Exhaust	1	1
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	86.6	60.8
cfm/ft²	0.17	0.17
cfm/ton	301.63	
ft²/ton	1,800.75	
Btu/hr·ft²	6.66	-10.38
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.0	0.1	0.1	2	93.4	64.1	55.5	55.0	49.5	51.5
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.1								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	10		
Part	890		
Int Door	0		
ExFlr	0		
Roof	10	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-0.1	2	28.5	92.1
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.1	2	28.5	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-0.1			

System Checksums

By PB

System - 002 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	4,001	4,001	18
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	150		150	1
Sub Total ==>	150	4,001	4,151	19
Internal Loads				
Lights	3,577	894	4,471	20
People	6,300	0	6,300	29
Misc	3,882	0	3,882	18
Sub Total ==>	13,759	894	14,653	67
Ceiling Load	1,901	-1,901	0	0
Ventilation Load	0	0	3,367	15
Adj Air Trans Heat	80		80	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-850	-850	-4
Sup. Fan Heat			310	1
Ret. Fan Heat		230	230	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	15,890	2,375	21,941	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	225	2
Sub Total ==>	225	2
Internal Loads		
Lights	3,577	27
People	3,500	27
Misc	3,882	30
Sub Total ==>	10,959	83
Ceiling Load	1,892	14
Ventilation Load	0	0
Adj Air Trans Heat	80	1
Ov/Undr Sizing	0	0
Grand Total ==>	13,155	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-3,448	15.69
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-458	-458	2.08
Sub Total ==>	-458	-3,906	17.77
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-1,335	0	0.00
Ventilation Load	0	-7,230	32.89
Adj Air Trans Heat	-221	-221	1
Ov/Undr Sizing	-8,133	-8,133	37.00
Exhaust Heat		387	-1.76
OA Preheat Diff.		-2,102	9.56
RA Preheat Diff.		-779	3.54
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-10,147	-21,983	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	83.8
Ra Plenum	79.0	67.2
Return	79.3	67.2
Ret/OA	84.0	58.4
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	792	792
Terminal	792	792
Main Fan	792	792
Sec Fan	0	0
Nom Vent	220	155
AHU Vent	220	155
Infil	10	10
MinStop/Rh	0	0
Return	777	781
Exhaust	205	143
Rm Exh	25	21
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	27.8	19.5
cfm/ft²	0.52	0.52
cfm/ton	376.70	
ft²/ton	721.31	
Btu/hr·ft²	16.64	-14.83
No. People	14	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	2.1	25.2	23.4	792	84.0	62.3	61.5	55.0	50.6	55.5
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2.1	25.2								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	1,517		
Part	15,096		
Int Door	0		
ExFlr	0		
Roof	1,601	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-22.5	792	54.7	83.8
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.3	792	54.7	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-22.5			

System Checksums

By PB

System - 003 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 16
Outside Air: OADB/WB/HR: 95 / 64 / 54

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	2,630	2,630	15
Glass Solar	2,286	0	2,286	13
Glass/Door Cond	702	0	702	4
Wall Cond	1,776	1,021	2,797	16
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	194		194	1
Sub Total ==>	4,958	3,651	8,609	49
Internal Loads				
Lights	2,426	606	3,032	17
People	900	0	900	5
Misc	2,492	0	2,492	14
Sub Total ==>	5,818	606	6,424	37
Ceiling Load	1,288	-1,288	0	0
Ventilation Load	0	0	2,674	15
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-661	-661	-4
Sup. Fan Heat			279	2
Ret. Fan Heat		215	215	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	12,064	2,522	17,540	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	2,445	21
Glass/Door Cond	677	6
Wall Cond	1,968	17
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	158	1
Sub Total ==>	5,249	44
Internal Loads		
Lights	2,426	20
People	500	4
Misc	2,492	21
Sub Total ==>	5,418	46
Ceiling Load	1,197	10
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	11,863	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-2,181	11.38
Glass Solar	0	0	0.00
Glass/Door Cond	-2,624	-2,624	13.70
Wall Cond	-2,019	-3,236	16.89
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-478	-478	2.50
Sub Total ==>	-5,122	-8,520	44.47
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-1,033	0	0.00
Ventilation Load	0	-4,640	24.22
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	-4,531	-4,531	23.65
Exhaust Heat		357	-1.86
OA Preheat Diff.		-1,349	7.04
RA Preheat Diff.		-476	2.49
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-10,686	-19,160	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	87.6
Ra Plenum	79.2	66.7
Return	79.4	66.7
Ret/OA	82.6	60.5
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	714	714
Terminal	714	714
Main Fan	714	714
Sec Fan	0	0
Nom Vent	141	99
AHU Vent	141	99
Infil	10	10
MinStop/Rh	0	0
Return	724	724
Exhaust	151	109
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	19.8	13.9
cfm/ft²	0.73	0.73
cfm/ton	424.93	
ft²/ton	579.15	
Btu/hr·ft²	20.72	-21.26
No. People	2	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	1.7	20.2	19.6	714	82.2	59.6	50.9	55.0	48.6	47.9
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.7	20.2								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	973		
Part	5,015		
Int Door	0		
ExFlr	0		
Roof	1,026	0	0
Wall	875	59	7
Ext Door	24	24	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-20.7	714	57.8	87.6
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-20.7			

System Checksums

By PB

System - 004 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	13,689	13,689	15
Glass Solar	10,087	0	10,087	11
Glass/Door Cond	332	0	332	0
Wall Cond	1,920	1,400	3,320	4
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	555		555	1
Sub Total ==>	12,894	15,089	27,983	30
Internal Loads				
Lights	12,497	3,124	15,621	17
People	24,300	0	24,300	26
Misc	13,397	0	13,397	15
Sub Total ==>	50,193	3,124	53,317	58
Ceiling Load	5,863	-5,863	0	0
Ventilation Load	0	0	10,798	12
Adj Air Trans Heat	105		105	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-2,648	-2,648	-3
Sup. Fan Heat			1,375	1
Ret. Fan Heat		1,028	1,028	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	69,056	10,729	91,959	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	10,087	17
Glass/Door Cond	332	1
Wall Cond	1,920	3
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	748	1
Sub Total ==>	13,087	22
Internal Loads		
Lights	12,497	21
People	13,500	23
Misc	13,397	23
Sub Total ==>	39,393	67
Ceiling Load	5,811	10
Ventilation Load	0	0
Adj Air Trans Heat	105	0
Ov/Undr Sizing	0	0
Grand Total ==>	58,397	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-12,231	16.94
Glass Solar	0	0	0.00
Glass/Door Cond	-5,468	-5,468	7.57
Wall Cond	-1,873	-3,231	4.47
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-1,915	-1,915	2.65
Sub Total ==>	-9,256	-22,846	31.64
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-4,532	0	0.00
Ventilation Load	0	-25,630	35.49
Adj Air Trans Heat	-226	-226	0
Ov/Undr Sizing	-14,633	-14,633	20.26
Exhaust Heat		1,362	-1.89
OA Preheat Diff.		-7,453	10.32
RA Preheat Diff.		-2,787	3.86
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-28,647	-72,212	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	79.4
Ra Plenum	78.4	67.3
Return	78.5	67.3
Ret/OA	82.4	60.3
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	3,516	3,516
Terminal	3,516	3,516
Main Fan	3,516	3,516
Sec Fan	0	0
Nom Vent	780	548
AHU Vent	780	548
Infil	41	41
MinStop/Rh	0	0
Return	3,468	3,494
Exhaust	732	525
Rm Exh	89	63
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	22.2	15.6
cfm/ft²	0.65	0.65
cfm/ton	398.98	
ft²/ton	610.11	
Btu/hr·ft²	19.67	-14.08
No. People	54	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	8.8	105.8	96.9	3,516	81.7	62.0	63.7	55.0	51.0	57.1
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	8.8	105.8								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	5,377		
Part	40,627		
Int Door	0		
ExFlr	0		
Roof	5,666	0	0
Wall	989	176	18
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-75.7	3,516	57.3	79.4
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-75.7			

System Checksums

By PB

System - 005 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	373	373	14
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	197	91	288	11
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	31		31	1
Sub Total ==>	228	464	692	26
Internal Loads				
Lights	610	153	763	28
People	450	0	450	17
Misc	381	0	381	14
Sub Total ==>	1,442	153	1,594	59
Ceiling Load	196	-196	0	0
Ventilation Load	0	0	428	16
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-100	-100	-4
Sup. Fan Heat			40	1
Ret. Fan Heat		31	31	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	1,865	351	2,685	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	235	14
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	32	2
Sub Total ==>	267	16
Internal Loads		
Lights	610	36
People	250	15
Misc	381	22
Sub Total ==>	1,242	73
Ceiling Load	195	11
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	1,704	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-332	17.36
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-382	-579	30.23
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-73	-73	3.82
Sub Total ==>	-455	-984	51.41
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-168	0	0.00
Ventilation Load	0	-710	37.10
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		58	-3.03
OA Preheat Diff.		-207	10.79
RA Preheat Diff.		-72	3.74
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-623	-1,914	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	77.8
Ra Plenum	79.2	66.4
Return	79.5	66.4
Ret/OA	83.0	59.9
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	103	103
Terminal	103	103
Main Fan	103	103
Sec Fan	0	0
Nom Vent	22	15
AHU Vent	22	15
Infil	2	2
MinStop/Rh	0	0
Return	104	104
Exhaust	23	17
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	21.1	14.8
cfm/ft²	0.69	0.69
cfm/ton	398.72	
ft²/ton	579.07	
Btu/hr·ft²	20.72	-13.90
No. People	1	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.3	3.1	2.9	103	83.0	61.0	56.3	55.0	49.6	51.6
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.3	3.1								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	149		
Part	1,177		
Int Door	0		
ExFlr	0		
Roof	157	0	0
Wall	146	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-2.1	103	57.1	77.8
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-2.1			

System Checksums

By PB

System - 006 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	302	302	15
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	13		13	1
Sub Total ==>	13	302	315	16
Internal Loads				
Lights	500	125	626	32
People	450	0	450	23
Misc	313	0	313	16
Sub Total ==>	1,263	125	1,388	70
Ceiling Load	148	-148	0	0
Ventilation Load	0	0	293	15
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-74	-74	-4
Sup. Fan Heat			29	1
Ret. Fan Heat		22	22	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	1,424	227	1,973	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	18	1
Sub Total ==>	18	1
Internal Loads		
Lights	500	41
People	250	20
Misc	313	25
Sub Total ==>	1,063	86
Ceiling Load	149	12
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	1,230	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-279	25.34
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-37	-37	3.35
Sub Total ==>	-37	-315	28.70
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-97	0	0.00
Ventilation Load	0	-582	52.99
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		32	-2.93
OA Preheat Diff.		-169	15.41
RA Preheat Diff.		-64	5.84
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-133	-1,099	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	72.3
Ra Plenum	78.8	67.5
Return	79.1	67.5
Ret/OA	83.2	59.9
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	74	74
Terminal	74	74
Main Fan	74	74
Sec Fan	0	0
Nom Vent	18	12
AHU Vent	18	12
Infil	1	1
MinStop/Rh	0	0
Return	75	75
Exhaust	19	13
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	23.9	16.8
cfm/ft²	0.61	0.61
cfm/ton	391.65	
ft²/ton	646.17	
Btu/hr·ft²	18.57	-9.27
No. People	1	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.2	2.3	2.1	74	83.2	61.8	60.3	55.0	50.5	55.1
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.2	2.3								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	122		
Part	1,304		
Int Door	0		
ExFlr	0		
Roof	129	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-1.1	74	56.6	72.3
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-1.1			

System Checksums

By PB

System - 007 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	325	325	17
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	14		14	1
Sub Total ==>	14	325	339	18
Internal Loads				
Lights	388	97	485	26
People	450	0	450	24
Misc	331	0	331	18
Sub Total ==>	1,169	97	1,266	67
Ceiling Load	158	-158	0	0
Ventilation Load	0	0	312	17
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-80	-80	-4
Sup. Fan Heat			27	1
Ret. Fan Heat		21	21	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	1,341	205	1,886	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	19	2
Sub Total ==>	19	2
Internal Loads		
Lights	388	34
People	250	22
Misc	331	29
Sub Total ==>	969	84
Ceiling Load	160	14
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	1,149	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-294	25.37
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-39	-39	3.37
Sub Total ==>	-39	-333	28.74
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-110	0	0.00
Ventilation Load	0	-616	53.20
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		37	-3.17
OA Preheat Diff.		-179	15.47
RA Preheat Diff.		-67	5.77
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-149	-1,158	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	72.8
Ra Plenum	78.9	67.3
Return	79.2	67.3
Ret/OA	83.8	58.7
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	69	69
Terminal	69	69
Main Fan	69	69
Sec Fan	0	0
Nom Vent	19	13
AHU Vent	19	13
Infil	1	1
MinStop/Rh	0	0
Return	70	70
Exhaust	20	14
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	27.1	19.0
cfm/ft²	0.54	0.54
cfm/ton	382.68	
ft²/ton	715.28	
Btu/hr·ft²	16.78	-9.25
No. People	1	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.2	2.2	2.0	69	83.8	62.0	60.0	55.0	50.3	54.5
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.2	2.2								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	129		
Part	1,335		
Int Door	0		
ExFlr	0		
Roof	136	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-1.2	69	55.0	72.8
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-1.2			

System Checksums

By PB

System - 008 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 9 / 15
Outside Air: OADB/WB/HR: 90 / 62 / 53

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	381	381	19
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	566	283	849	41
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	20		20	1
Sub Total ==>	586	664	1,250	61
Internal Loads				
Lights	192	48	240	12
People	0	0	0	0
Misc	360	0	360	18
Sub Total ==>	552	48	601	29
Ceiling Load	249	-249	0	0
Ventilation Load	0	0	274	13
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-126	-126	-6
Sup. Fan Heat			33	2
Ret. Fan Heat		25	25	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	1,388	363	2,057	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	566	41
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	21	2
Sub Total ==>	587	42
Internal Loads		
Lights	192	14
People	0	0
Misc	360	26
Sub Total ==>	552	40
Ceiling Load	249	18
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	1,389	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-308	15.53
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-495	-745	37.55
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-69	-69	3.49
Sub Total ==>	-564	-1,122	56.57
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-195	0	0.00
Ventilation Load	0	-671	33.82
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		67	-3.40
OA Preheat Diff.		-195	9.84
RA Preheat Diff.		-63	3.17
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-759	-1,984	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	81.7
Ra Plenum	80.6	65.6
Return	80.9	65.6
Ret/OA	83.0	58.1
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	84	84
Terminal	84	84
Main Fan	84	84
Sec Fan	0	0
Nom Vent	20	14
AHU Vent	20	14
Infil	1	1
MinStop/Rh	0	0
Return	85	85
Exhaust	22	16
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	24.4	17.2
cfm/ft²	0.59	0.59
cfm/ton	420.23	
ft²/ton	707.36	
Btu/hr·ft²	16.96	-15.44
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.2	2.4	2.4	84	83.0	60.5	54.1	55.0	49.7	52.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.2	2.4								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	141		
Part	551		
Int Door	0		
ExFlr	0		
Roof	148	0	0
Wall	189	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-2.2	84	55.0	81.7
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	84	55.0	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-2.2			

System Checksums

By PB

System - 009 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 10 / 15
Outside Air: OADB/WB/HR: 81 / 64 / 73

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	1,452	1,452	10
Glass Solar	3,205	0	3,205	23
Glass/Door Cond	105	0	105	1
Wall Cond	1,221	746	1,966	14
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	71		71	0
Sub Total ==>	4,601	2,198	6,799	48
Internal Loads				
Lights	1,898	475	2,373	17
People	2,250	0	2,250	16
Misc	1,618	0	1,618	11
Sub Total ==>	5,766	475	6,240	44
Ceiling Load	663	-663	0	0
Ventilation Load	0	0	1,086	8
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-344	-344	-2
Sup. Fan Heat			241	2
Ret. Fan Heat		185	185	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	11,029	1,851	14,208	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	3,205	31
Glass/Door Cond	105	1
Wall Cond	1,441	14
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	57	1
Sub Total ==>	4,807	47
Internal Loads		
Lights	1,898	19
People	1,250	12
Misc	1,618	16
Sub Total ==>	4,766	46
Ceiling Load	678	7
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	10,251	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,433	14.43
Glass Solar	0	0	0.00
Glass/Door Cond	-1,823	-1,823	18.35
Wall Cond	-1,375	-2,218	22.33
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-281	-281	2.83
Sub Total ==>	-3,479	-5,755	57.95
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-564	0	0.00
Ventilation Load	0	-3,013	30.33
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	-158	-158	1.59
Exhaust Heat		193	-1.95
OA Preheat Diff.		-876	8.82
RA Preheat Diff.		-323	3.26
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-4,202	-9,932	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	78.7
Ra Plenum	78.3	67.2
Return	78.5	67.2
Ret/OA	78.9	62.5
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	617	617
Terminal	617	617
Main Fan	617	617
Sec Fan	0	0
Nom Vent	92	64
AHU Vent	92	64
Infil	6	6
MinStop/Rh	0	0
Return	623	623
Exhaust	98	70
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	14.8	10.4
cfm/ft²	0.98	0.98
cfm/ton	453.32	
ft²/ton	464.16	
Btu/hr·ft²	25.85	-17.32
No. People	5	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	1.4	16.3	15.2	617	79.8	61.7	65.1	55.0	52.0	61.3
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.4	16.3								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	632		
Part	4,746		
Int Door	0		
ExFlr	0		
Roof	666	0	0
Wall	616	59	10
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-10.9	617	60.5	78.7
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-10.9			

System Checksums

By PB

System - 010 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 16
Outside Air: OADB/WB/HR: 95 / 64 / 54

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	1,150	1,150	17
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	1,481	716	2,197	33
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	85		85	1
Sub Total ==>	1,566	1,866	3,432	52
Internal Loads				
Lights	896	224	1,120	17
People	0	0	0	0
Misc	1,050	0	1,050	16
Sub Total ==>	1,946	224	2,170	33
Ceiling Load	683	-683	0	0
Ventilation Load	0	0	1,170	18
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-345	-345	-5
Sup. Fan Heat			106	2
Ret. Fan Heat		81	81	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	4,195	1,143	6,615	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	1,793	40
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	59	1
Sub Total ==>	1,852	41
Internal Loads		
Lights	896	20
People	0	0
Misc	1,050	23
Sub Total ==>	1,946	43
Ceiling Load	697	16
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	4,495	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-896	14.32
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-1,765	-2,654	42.43
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-202	-202	3.22
Sub Total ==>	-1,967	-3,751	59.97
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-583	0	0.00
Ventilation Load	0	-1,956	31.26
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		202	-3.22
OA Preheat Diff.		-569	9.09
RA Preheat Diff.		-181	2.90
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-2,550	-6,255	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	82.1
Ra Plenum	80.3	65.5
Return	80.6	65.5
Ret/OA	83.8	58.8
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	271	271
Terminal	271	271
Main Fan	271	271
Sec Fan	0	0
Nom Vent	59	42
AHU Vent	59	42
Infil	4	4
MinStop/Rh	0	0
Return	275	275
Exhaust	64	46
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	22.0	15.4
cfm/ft²	0.66	0.66
cfm/ton	425.77	
ft²/ton	645.36	
Btu/hr·ft²	18.59	-16.80
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.6	7.6	7.6	271	83.8	60.8	54.3	55.0	50.2	54.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.6	7.6								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	410		
Part	1,124		
Int Door	0		
ExFlr	0		
Roof	432	0	0
Wall	674	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-6.9	271	56.0	82.1
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-6.9			

System Checksums

By PB

System - 011 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 17
Outside Air: OADB/WB/HR: 94 / 63 / 51

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	151	151	17
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	215	106	321	37
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	11		11	1
Sub Total ==>	226	257	483	55
Internal Loads				
Lights	84	21	105	12
People	0	0	0	0
Misc	158	0	158	18
Sub Total ==>	242	21	263	30
Ceiling Load	100	-100	0	0
Ventilation Load	0	0	159	18
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-51	-51	-6
Sup. Fan Heat			14	2
Ret. Fan Heat		11	11	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	568	138	878	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	233	40
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	10	2
Sub Total ==>	244	42
Internal Loads		
Lights	84	14
People	0	0
Misc	158	27
Sub Total ==>	242	41
Ceiling Load	99	17
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	585	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-135	15.42
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-221	-332	38.02
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-30	-30	3.47
Sub Total ==>	-251	-497	56.91
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-88	0	0.00
Ventilation Load	0	-294	33.68
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		30	-3.49
OA Preheat Diff.		-85	9.79
RA Preheat Diff.		-27	3.11
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-339	-873	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	82.4
Ra Plenum	80.1	65.5
Return	80.4	65.5
Ret/OA	83.8	57.7
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	35	35
Terminal	35	35
Main Fan	35	35
Sec Fan	0	0
Nom Vent	9	6
AHU Vent	9	6
Infil	1	1
MinStop/Rh	0	0
Return	36	36
Exhaust	10	7
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	25.4	17.9
cfm/ft²	0.57	0.57
cfm/ton	415.34	
ft²/ton	727.76	
Btu/hr·ft²	16.49	-15.53
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	0.1	1.0	1.0	35	83.8	60.3	51.9	55.0	49.2	50.4
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.1	1.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	62		
Part	780		
Int Door	0		
ExFlr	0		
Roof	65	0	0
Wall	84	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-1.0	35	54.4	82.4
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	35	54.4	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-1.0			

System Checksums

By PB

System - 012 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 16
Outside Air: OADB/WB/HR: 95 / 64 / 54

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	1,939	0	1,939	17
Glass Solar	0	0	0	0
Glass/Door Cond	594	0	594	5
Wall Cond	2,254	0	2,254	19
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	167		167	1
Sub Total ==>	4,953	0	4,953	42
Internal Loads				
Lights	2,698	675	3,373	29
People	0	0	0	0
Misc	1,686	0	1,686	14
Sub Total ==>	4,385	675	5,059	43
Ceiling Load	0	0	0	0
Ventilation Load	0	0	1,484	13
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-154	-154	-1
Sup. Fan Heat			224	2
Ret. Fan Heat		173	173	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	9,338	694	11,740	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	1,745	18
Glass Solar	0	0
Glass/Door Cond	649	7
Wall Cond	2,534	27
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	218	2
Sub Total ==>	5,146	54
Lights	2,698	28
People	0	0
Misc	1,686	18
Sub Total ==>	4,385	46
Ceiling Load	0	0
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	9,531	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	-1,587	-1,587	14.25
Glass Solar	0	0	0.00
Glass/Door Cond	-1,523	-1,523	13.67
Wall Cond	-3,053	-3,053	27.42
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-503	-503	4.52
Sub Total ==>	-6,666	-6,666	59.87
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	0	0	0.00
Ventilation Load	0	-3,141	28.20
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		-913	8.20
RA Preheat Diff.		-415	3.73
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-6,666	-11,135	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	84.9
Ra Plenum	75.0	70.0
Return	76.5	70.0
Ret/OA	79.7	64.4
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	574	574
Terminal	574	574
Main Fan	574	574
Sec Fan	0	0
Nom Vent	96	67
AHU Vent	96	67
Infil	11	11
MinStop/Rh	0	0
Return	585	585
Exhaust	106	78
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	16.6	11.7
cfm/ft²	0.87	0.87
cfm/ton	490.37	
ft²/ton	563.00	
Btu/hr·ft²	21.31	-19.43
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	1.2	14.0	14.0	574	79.7	58.3	49.1	55.0	48.7	48.1
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.2	14.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	659		
Part	1,590		
Int Door	0		
ExFlr	0		
Roof	694	0	0
Wall	749	0	0
Ext Door	45	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-12.8	574	62.0	84.9
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-12.8			

System Checksums

By PB

System - 013 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 6 / 15
Outside Air: OADB/WB/HR: 99 / 64 / 48

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	377	377	15
Glass Solar	0	0	0	0
Glass/Door Cond	279	0	279	11
Wall Cond	166	100	266	11
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	32		32	1
Sub Total ==>	477	476	954	38
Internal Loads				
Lights	608	152	760	30
People	0	0	0	0
Misc	380	0	380	15
Sub Total ==>	988	152	1,140	45
Ceiling Load	199	-199	0	0
Ventilation Load	0	0	443	18
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-102	-102	-4
Sup. Fan Heat			40	2
Ret. Fan Heat		31	31	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	1,664	358	2,506	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	297	17
Wall Cond	188	11
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	32	2
Sub Total ==>	516	30
Internal Loads		
Lights	608	36
People	0	0
Misc	380	22
Sub Total ==>	988	58
Ceiling Load	195	12
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	1,699	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-331	12.94
Glass Solar	0	0	0.00
Glass/Door Cond	-721	-721	28.20
Wall Cond	-305	-506	19.80
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-73	-73	2.85
Sub Total ==>	-1,099	-1,631	63.79
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-169	0	0.00
Ventilation Load	0	-708	27.67
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		58	-2.28
OA Preheat Diff.		-206	8.05
RA Preheat Diff.		-71	2.78
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-1,268	-2,557	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	85.9
Ra Plenum	79.2	66.4
Return	79.5	66.4
Ret/OA	83.6	59.8
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	102	102
Terminal	102	102
Main Fan	102	102
Sec Fan	0	0
Nom Vent	22	15
AHU Vent	22	15
Infil	2	2
MinStop/Rh	0	0
Return	104	104
Exhaust	23	17
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	21.0	14.8
cfm/ft²	0.69	0.69
cfm/ton	416.94	
ft²/ton	604.89	
Btu/hr·ft²	19.84	-19.36
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.3	2.9	2.9	102	83.6	60.1	51.4	55.0	49.0	49.6
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.3	2.9								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	148		
Part	1,181		
Int Door	0		
ExFlr	0		
Roof	156	0	0
Wall	128	0	0
Ext Door	22	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-2.9	102	57.1	85.9
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-2.9			

System Checksums

By PB

System - 014 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 16
Outside Air: OADB/WB/HR: 95 / 64 / 54

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	141	141	18
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	114	52	166	22
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	15		15	2
Sub Total ==>	130	193	323	42
Internal Loads				
Lights	84	21	105	14
People	0	0	0	0
Misc	158	0	158	20
Sub Total ==>	242	21	263	34
Ceiling Load	87	-87	0	0
Ventilation Load	0	0	211	27
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-45	-45	-6
Sup. Fan Heat			11	1
Ret. Fan Heat		9	9	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	459	91	772	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	134	28
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	11	2
Sub Total ==>	145	31
Internal Loads		
Lights	84	18
People	0	0
Misc	158	33
Sub Total ==>	242	51
Ceiling Load	86	18
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	473	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-133	15.37
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-221	-330	38.22
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-30	-30	3.50
Sub Total ==>	-251	-494	57.09
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-99	0	0.00
Ventilation Load	0	-294	34.00
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		34	-3.95
OA Preheat Diff.		-85	9.89
RA Preheat Diff.		-26	2.98
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-350	-865	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	85.8
Ra Plenum	79.5	64.9
Return	79.8	64.9
Ret/OA	84.7	55.5
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	28	28
Terminal	28	28
Main Fan	28	28
Sec Fan	0	0
Nom Vent	9	6
AHU Vent	9	6
Infil	1	1
MinStop/Rh	0	0
Return	29	29
Exhaust	10	7
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	31.4	22.1
cfm/ft²	0.46	0.46
cfm/ton	384.88	
ft²/ton	833.18	
Btu/hr·ft²	14.40	-15.44
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.1	0.9	0.9	28	84.7	60.2	49.9	55.0	48.1	46.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.1	0.9								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	62		
Part	780		
Int Door	0		
ExFlr	0		
Roof	65	0	0
Wall	84	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-1.0	28	51.5	85.8
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.1	28	51.5	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-1.0			

System Checksums

By PB

System - 015 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 6 / 15
Outside Air: OADB/WB/HR: 99 / 64 / 48

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	4,212	4,212	12
Glass Solar	2,959	0	2,959	8
Glass/Door Cond	3,361	0	3,361	10
Wall Cond	1,994	1,279	3,273	9
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	236		236	1
Sub Total ==>	8,551	5,492	14,042	40
Internal Loads				
Lights	4,765	1,191	5,956	17
People	7,650	0	7,650	22
Misc	4,061	0	4,061	12
Sub Total ==>	16,475	1,191	17,666	50
Ceiling Load	1,754	-1,754	0	0
Ventilation Load	0	0	3,260	9
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-912	-912	-3
Sup. Fan Heat			558	2
Ret. Fan Heat		428	428	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	26,780	4,445	35,043	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	2,902	12
Glass/Door Cond	3,477	15
Wall Cond	2,134	9
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	363	2
Sub Total ==>	8,876	37
Internal Loads		
Lights	4,765	20
People	4,250	18
Misc	4,061	17
Sub Total ==>	13,075	55
Ceiling Load	1,742	7
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	23,694	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-3,576	11.03
Glass Solar	0	0	0.00
Glass/Door Cond	-8,203	-8,203	25.30
Wall Cond	-3,361	-5,667	17.48
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-779	-779	2.40
Sub Total ==>	-12,343	-18,225	56.21
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-1,549	0	0.00
Ventilation Load	0	-7,562	23.32
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	-4,178	-4,178	12.89
Exhaust Heat		535	-1.65
OA Preheat Diff.		-2,199	6.78
RA Preheat Diff.		-794	2.45
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-18,070	-32,423	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	85.5
Ra Plenum	78.5	66.9
Return	78.8	66.9
Ret/OA	82.0	61.8
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	1,427	1,427
Terminal	1,427	1,427
Main Fan	1,427	1,427
Sec Fan	0	0
Nom Vent	230	162
AHU Vent	230	162
Infil	17	17
MinStop/Rh	0	0
Return	1,443	1,443
Exhaust	247	178
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	16.1	11.3
cfm/ft²	0.90	0.90
cfm/ton	424.80	
ft²/ton	472.37	
Btu/hr·ft²	25.40	-22.63
No. People	17	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	3.4	40.3	38.9	1,427	82.0	61.4	59.9	55.0	50.8	56.6
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	3.4	40.3								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	1,586		
Part	10,636		
Int Door	0		
ExFlr	0		
Roof	1,672	0	0
Wall	1,694	264	16
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-35.9	1,427	59.7	85.5
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-35.9			

System Checksums

By PB

System - 016 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 12
Outside Air: OADB/WB/HR: 91 / 61 / 46

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	1,261	1,261	7
Glass Solar	6,882	0	6,882	37
Glass/Door Cond	1,147	0	1,147	6
Wall Cond	1,332	991	2,323	13
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	74		74	0
Sub Total ==>	9,435	2,252	11,687	63
Internal Loads				
Lights	1,687	422	2,109	11
People	1,800	0	1,800	10
Misc	1,438	0	1,438	8
Sub Total ==>	4,926	422	5,348	29
Ceiling Load	458	-458	0	0
Ventilation Load	0	0	1,022	6
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-245	-245	-1
Sup. Fan Heat			338	2
Ret. Fan Heat		258	258	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	14,818	2,229	18,408	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	7,334	51
Glass/Door Cond	1,017	7
Wall Cond	1,350	9
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	89	1
Sub Total ==>	9,791	68
Internal Loads		
Lights	1,687	12
People	1,000	7
Misc	1,438	10
Sub Total ==>	4,126	29
Ceiling Load	444	3
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	14,361	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,284	8.49
Glass Solar	0	0	0.00
Glass/Door Cond	-5,468	-5,468	36.16
Wall Cond	-1,649	-2,895	19.14
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-276	-276	1.82
Sub Total ==>	-7,393	-9,924	65.61
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-439	0	0.00
Ventilation Load	0	-2,678	17.71
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	-1,600	-1,600	10.58
Exhaust Heat		152	-1.00
OA Preheat Diff.		-779	5.15
RA Preheat Diff.		-296	1.96
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-9,432	-15,125	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	83.5
Ra Plenum	77.6	67.5
Return	77.9	67.5
Ret/OA	79.1	64.5
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	865	865
Terminal	865	865
Main Fan	865	865
Sec Fan	0	0
Nom Vent	81	57
AHU Vent	81	57
Infil	6	6
MinStop/Rh	0	0
Return	871	871
Exhaust	87	63
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	9.4	6.6
cfm/ft²	1.54	1.54
cfm/ton	490.15	
ft²/ton	318.50	
Btu/hr·ft²	37.68	-30.40
No. People	4	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	1.8	21.2	20.6	865	79.1	58.3	49.9	55.0	48.7	48.2
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.8	21.2								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	562		
Part	3,733		
Int Door	0		
ExFlr	0		
Roof	592	0	0
Wall	903	176	19
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-17.1	865	63.2	83.5
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-17.1			

System Checksums

By PB

System - 017 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 9 / 14
Outside Air: OADB/WB/HR: 89 / 62 / 52

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	1,839	1,839	12
Glass Solar	3,367	0	3,367	21
Glass/Door Cond	863	0	863	6
Wall Cond	1,439	965	2,404	15
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	101		101	1
Sub Total ==>	5,771	2,804	8,576	55
Internal Loads				
Lights	2,043	511	2,553	16
People	1,350	0	1,350	9
Misc	1,741	0	1,741	11
Sub Total ==>	5,134	511	5,644	36
Ceiling Load	793	-793	0	0
Ventilation Load	0	0	1,402	9
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-410	-410	-3
Sup. Fan Heat			272	2
Ret. Fan Heat		208	208	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	11,698	2,320	15,692	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	4,448	38
Glass/Door Cond	449	4
Wall Cond	1,357	12
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	63	1
Sub Total ==>	6,317	55
Internal Loads		
Lights	2,043	18
People	750	6
Misc	1,741	15
Sub Total ==>	4,534	39
Ceiling Load	717	6
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	11,568	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,542	12.43
Glass Solar	0	0	0.00
Glass/Door Cond	-3,646	-3,646	29.38
Wall Cond	-1,523	-2,568	20.70
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-334	-334	2.69
Sub Total ==>	-5,503	-8,089	65.20
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-619	0	0.00
Ventilation Load	0	-3,242	26.13
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		214	-1.72
OA Preheat Diff.		-943	7.60
RA Preheat Diff.		-347	2.79
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-6,121	-12,407	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	81.3
Ra Plenum	78.7	67.1
Return	79.0	67.1
Ret/OA	80.4	62.6
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	696	696
Terminal	696	696
Main Fan	696	696
Sec Fan	0	0
Nom Vent	99	69
AHU Vent	99	69
Infil	7	7
MinStop/Rh	0	0
Return	704	704
Exhaust	106	76
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	14.2	10.0
cfm/ft²	1.02	1.02
cfm/ton	463.15	
ft²/ton	452.26	
Btu/hr·ft²	26.53	-20.49
No. People	3	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	1.5	18.1	17.3	696	80.4	59.0	50.9	55.0	48.9	48.9
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.5	18.1								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	680		
Part	1,255		
Int Door	0		
ExFlr	0		
Roof	718	0	0
Wall	764	117	15
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-13.9	696	60.7	81.3
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-13.9			

System Checksums

By PB

CUHs - Vestibules **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 6 / 16
Outside Air: OADB/WB/HR: 98 / 64 / 47

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	244	244	16
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	200	103	303	20
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	8		8	1
Sub Total ==>	208	348	555	37
Internal Loads				
Lights	197	49	246	17
People	0	0	0	0
Misc	676	0	676	46
Sub Total ==>	873	49	922	62
Ceiling Load	196	-196	0	0
Ventilation Load	0	0	0	0
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-1	-1	0
Sup. Fan Heat			8	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	1,276	199	1,483	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	215	17
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	10	1
Sub Total ==>	225	17
Internal Loads		
Lights	197	15
People	0	0
Misc	676	52
Sub Total ==>	873	68
Ceiling Load	191	15
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	1,288	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-203	30.91
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-279	-427	64.93
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-29	-29	4.37
Sub Total ==>	-308	-659	100.21
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-197	0	0.00
Ventilation Load	0	0	0.00
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		1	-0.21
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-505	-657	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	77.9
Ra Plenum	77.3	67.6
Return	77.3	67.6
Ret/OA	77.3	67.6
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	66	66
Terminal	66	66
Main Fan	66	66
Sec Fan	0	0
Nom Vent	0	0
AHU Vent	0	0
Infil	1	1
MinStop/Rh	0	0
Return	67	67
Exhaust	1	1
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	0.0	0.0
cfm/ft²	0.25	0.25
cfm/ton	533.84	
ft²/ton	2,133.13	
Btu/hr·ft²	5.63	-2.49
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	0.1	1.5	1.5	66	77.3	58.8	54.9	54.9	50.1	53.8
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.1	1.5								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	264		
Part	2,111		
Int Door	0		
ExFlr	0		
Roof	278	0	0
Wall	358	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-0.7	66	67.6	77.9
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-0.7			

System Checksums

By PB

DUMMY **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 5 / 9
Outside Air: OADB/WB/HR: 70 / 48 / 21

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	1	0	1	0
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	-1		-1	0
Sub Total ==>	0	0	0	0
Internal Loads				
Lights	0	0	0	0
People	0	0	0	0
Misc	0	0	0	0
Sub Total ==>	0	0	0	0
Ceiling Load	0	0	0	0
Ventilation Load	0	0	0	0
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			0	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	0	0	0	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	1	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	0	0
Sub Total ==>	1	0
Internal Loads		
Lights	0	0
People	0	0
Misc	0	0
Sub Total ==>	0	0
Ceiling Load	0	0
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
***Grand Total* ==>**	1	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	-8	-8	91.95
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-1	-1	8.05
Sub Total ==>	-8	-8	100.00
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	0	0	0.00
Ventilation Load	0	0	0.00
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-8	-8	100.00

TEMPERATURES

	Cooling	Heating
SADB	80.0	55.0
Ra Plenum	80.0	55.0
Return	80.0	55.0
Ret/OA	80.0	55.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	0	0
Terminal	0	0
Main Fan	0	0
Sec Fan	0	0
Nom Vent	0	0
AHU Vent	0	0
Infil	0	0
MinStop/Rh	0	0
Return	0	0
Exhaust	0	0
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	0.0	0.0
cfm/ft²	0.00	0.00
cfm/ton	0.00	
ft²/ton	0.00	
Btu/hr·ft²	0.00	0.00
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	10		
Part	890		
Int Door	0		
ExFlr	0		
Roof	10	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	0.0	0	0.0	0.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	55.0	80.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	0.0			

System Checksums

By PB

FCU - Elec **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	151	151	0
Glass Solar	0	0	0	0
Glass/Door Cond	254	0	254	0
Wall Cond	35	24	59	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	3		3	0
Sub Total ==>	293	175	468	0
Internal Loads				
Lights	349	87	437	0
People	0	0	0	0
Misc	380	0	380	0
Sub Total ==>	729	87	817	0
Ceiling Load	47	-47	0	0
Ventilation Load	0	0	8,296,135	124
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-1,597,938	-1,597,938	-24
Sup. Fan Heat			26	0
Ret. Fan Heat		5	5	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	1,069	-1,597,717	6,699,513	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	297	26
Wall Cond	42	4
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	8	1
Sub Total ==>	346	31
Internal Loads		
Lights	349	31
People	0	0
Misc	380	34
Sub Total ==>	729	65
Ceiling Load	48	4
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	1,123	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-118	1.05
Glass Solar	0	0	0.00
Glass/Door Cond	-687	-687	6.11
Wall Cond	-88	-152	1.35
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-16	-16	0.14
Sub Total ==>	-791	-974	8.66
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-32	0	0.00
Ventilation Load	0	-10,416	92.67
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		150	-1.33
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-824	-11,239	100.00

TEMPERATURES

	Cooling	Heating
SADB	69.8	73.8
Ra Plenum	76.0	69.3
Return	76.0	69.3
Ret/OA	96.2	22.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	223	223
Terminal	223	223
Main Fan	223	223
Sec Fan	0	0
Nom Vent	826,263	223
AHU Vent	826,263	223
Infil	0	0
MinStop/Rh	0	0
Return	826,264	223
Exhaust	1,652,305	223
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	100.0	100.0
cfm/ft²	1.50	1.50
cfm/ton	0.17	
ft²/ton	0.11	
Btu/hr·ft²	104,357.32	256,651.11
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	1,290.9	15,490.5	15,490.5	223	96.2	64.9	55.2	69.7	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1,290.9	15,490.5								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	148		
Part	1,181		
Int Door	0		
ExFlr	0		
Roof	156	0	0
Wall	126	0	0
Ext Door	24	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-38,096.7	223	94.5	73.8
Aux Htg	0.0	0	0.0	0.0
Preheat	-10.4	223	22.0	69.7
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-38,096.7			

System Checksums

By PB

FCU - Evid Dep — **Fan Coil**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	445	445	12
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	272	133	404	11
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	11		11	0
Sub Total ==>	283	578	861	24
Internal Loads				
Lights	708	177	885	24
People	0	0	0	0
Misc	1,050	0	1,050	29
Sub Total ==>	1,758	177	1,935	53
Ceiling Load	384	-384	0	0
Ventilation Load	0	0	965	27
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-144	-144	-4
Sup. Fan Heat			15	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	2,425	227	3,633	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	406	16
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	7	0
Sub Total ==>	413	17
Internal Loads		
Lights	708	28
People	0	0
Misc	1,050	42
Sub Total ==>	1,758	70
Ceiling Load	326	13
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing		
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	2,497	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-316	9.46
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-526	-805	24.11
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-27	-27	0.82
Sub Total ==>	-554	-1,148	34.39
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-302	0	0.00
Ventilation Load	0	-2,303	68.99
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		113	-3.38
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-856	-3,338	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	76.9
Ra Plenum	78.0	67.7
Return	78.0	67.7
Ret/OA	85.0	50.1
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	128	128
Terminal	128	128
Main Fan	128	128
Sec Fan	0	0
Nom Vent	49	49
AHU Vent	49	49
Infil	1	1
MinStop/Rh	0	0
Return	129	129
Exhaust	50	50
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	38.4	38.4
cfm/ft²	0.31	0.31
cfm/ton	416.98	
ft²/ton	1,335.50	
Btu/hr·ft²	8.99	-8.14
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.3	3.7	3.7	128	85.1	61.6	56.3	55.0	50.8	56.3
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.3	3.7								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	410		
Part	1,124		
Int Door	0		
ExFlr	0		
Roof	432	0	0
Wall	674	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-3.3	128	50.1	76.9
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.6	128	50.1	54.9
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-3.3			

System Checksums

By PB

FCU - Mech **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	718	0	718	0
Glass Solar	0	0	0	0
Glass/Door Cond	522	0	522	0
Wall Cond	426	0	426	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	24		24	0
Sub Total ==>	1,691	0	1,691	1
Internal Loads				
Lights	1,311	0	1,311	1
People	2	0	2	0
Misc	1,686	0	1,686	1
Sub Total ==>	2,999	0	2,999	1
Ceiling Load	0	0	0	0
Ventilation Load	0	0	220,296	98
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			109	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	4,690	0	225,096	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	697	14
Glass Solar	0	0
Glass/Door Cond	590	12
Wall Cond	536	11
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	53	1
Sub Total ==>	1,876	38
Internal Loads		
Lights	1,311	27
People	1	0
Misc	1,686	35
Sub Total ==>	2,998	62
Ceiling Load	0	0
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
***Grand Total* ==>**	4,874	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	-533	-533	1.16
Glass Solar	0	0	0.00
Glass/Door Cond	-1,305	-1,305	2.84
Wall Cond	-911	-911	1.98
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-111	-111	0.24
Sub Total ==>	-2,861	-2,861	6.22
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	0	0	0.00
Ventilation Load	0	-43,148	93.78
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-2,861	-46,008	100.00

TEMPERATURES

	Cooling	Heating
SADB	69.6	73.2
Ra Plenum	75.0	70.0
Return	75.0	70.0
Ret/OA	96.2	22.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	922	922
Terminal	922	922
Main Fan	922	922
Sec Fan	0	0
Nom Vent	21,522	922
AHU Vent	21,522	922
Infil	2	2
MinStop/Rh	0	0
Return	21,525	925
Exhaust	42,124	925
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	100.0	100.0
cfm/ft²	1.40	1.40
cfm/ton	24.60	
ft²/ton	17.57	
Btu/hr·ft²	682.87	-1,532.44
No. People	1	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	37.5	449.9	449.9	922	96.2	64.9	55.2	69.5	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	37.5	449.9								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	659		
Part	1,590		
Int Door	0		
ExFlr	0		
Roof	694	0	0
Wall	749	0	0
Ext Door	45	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-1,009.6	922	22,050.0	73.2
Aux Htg	0.0	0	0.0	0.0
Preheat	-42.7	922	22.0	69.5
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-1,009.6			

System Checksums

By PB

FCU - TR#1 **Fan Coil**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	148	148	10
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	45	22	68	4
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	3		3	0
Sub Total ==>	48	171	219	14
Internal Loads				
Lights	349	87	437	28
People	450	0	450	29
Misc	381	0	381	25
Sub Total ==>	1,181	87	1,268	82
Ceiling Load	96	-96	0	0
Ventilation Load	0	0	80	5
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-18	-18	-1
Sup. Fan Heat			2	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	1,325	144	1,552	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	54	5
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	8	1
Sub Total ==>	62	5
Internal Loads		
Lights	349	31
People	250	22
Misc	381	33
Sub Total ==>	981	86
Ceiling Load	98	9
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	1,141	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-117	16.39
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-114	-175	24.57
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-16	-16	2.27
Sub Total ==>	-130	-309	43.23
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-66	0	0.00
Ventilation Load	0	-418	58.56
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		13	-1.79
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-197	-714	100.00

TEMPERATURES

	Cooling	Heating
SADB	60.6	72.5
Ra Plenum	77.0	68.6
Return	77.0	68.6
Ret/OA	79.2	63.5
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	81	81
Terminal	81	81
Main Fan	81	81
Sec Fan	0	0
Nom Vent	9	9
AHU Vent	9	9
Infil	0	0
MinStop/Rh	0	0
Return	82	82
Exhaust	9	9
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	11.0	11.0
cfm/ft²	0.55	0.55
cfm/ton	628.17	
ft²/ton	1,152.11	
Btu/hr·ft²	10.42	-4.79
No. People	1	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	0.1	1.6	1.5	81	79.2	62.9	72.2	60.6	56.3	70.6
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.1	1.6								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	149		
Part	1,177		
Int Door	0		
ExFlr	0		
Roof	157	0	0
Wall	146	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-0.7	81	63.5	72.5
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-0.7			

System Checksums

By PB

FCU - TR#2 **Fan Coil**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	117	117	9
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	2		2	0
Sub Total ==>	2	117	119	9
Internal Loads				
Lights	349	87	437	32
People	450	0	450	33
Misc	313	0	313	23
Sub Total ==>	1,112	87	1,200	87
Ceiling Load	78	-78	0	0
Ventilation Load	0	0	67	5
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-15	-15	-1
Sup. Fan Heat			2	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	1,192	112	1,373	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	4	0
Sub Total ==>	4	0
Internal Loads		
Lights	349	35
People	250	25
Misc	313	31
Sub Total ==>	912	92
Ceiling Load	80	8
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	996	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-97	21.95
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-8	-8	1.85
Sub Total ==>	-8	-105	23.79
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-37	0	0.00
Ventilation Load	0	-343	77.79
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		7	-1.59
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-45	-441	100.00

TEMPERATURES

	Cooling	Heating
SADB	59.0	70.7
Ra Plenum	77.0	69.0
Return	77.0	69.0
Ret/OA	79.2	63.7
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	64	64
Terminal	64	64
Main Fan	64	64
Sec Fan	0	0
Nom Vent	7	7
AHU Vent	7	7
Infil	0	0
MinStop/Rh	0	0
Return	64	64
Exhaust	8	8
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	11.4	11.4
cfm/ft²	0.52	0.52
cfm/ton	559.87	
ft²/ton	1,068.20	
Btu/hr·ft²	11.23	-3.61
No. People	1	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	0.1	1.4	1.3	64	79.3	62.9	71.9	59.0	55.4	69.1
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.1	1.4								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	122		
Part	1,304		
Int Door	0		
ExFlr	0		
Roof	129	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-0.4	64	63.7	70.7
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-0.4			

System Checksums

By PB

Primary - VAV w/ BB | **VAV w/Baseboard Skin Heating**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	9,117	9,117	7
Glass Solar	4,591	0	4,591	4
Glass/Door Cond	8,734	0	8,734	7
Wall Cond	1,481	1,024	2,505	2
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	282		282	0
Sub Total ==>	15,089	10,141	25,229	20
Internal Loads				
Lights	11,293	2,823	14,116	11
People	35,550	0	35,550	29
Misc	22,523	0	22,523	18
Sub Total ==>	69,367	2,823	72,190	58
Ceiling Load	5,639	-5,639	0	0
Ventilation Load	0	0	26,960	22
Adj Air Trans Heat	193		193	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-3,476	-3,476	-3
Sup. Fan Heat			1,496	1
Ret. Fan Heat		1,119	1,119	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	90,288	4,968	123,712	100.00

CLG SPACE PEAK

Mo/Hr: 6 / 16
OADB: 98

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	4,602	6
Glass/Door Cond	10,140	13
Wall Cond	1,623	2
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	372	0
Sub Total ==>	16,736	22
Internal Loads		
Lights	11,320	15
People	19,750	26
Misc	22,523	30
Sub Total ==>	53,594	70
Ceiling Load	5,505	7
Ventilation Load	0	0
Adj Air Trans Heat	193	0
Ov/Undr Sizing	0	0
Grand Total ==>	76,028	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-6,929	8.83
Glass Solar	0	0	0.00
Glass/Door Cond	-23,472	-23,472	29.90
Wall Cond	-2,701	-4,609	5.87
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-784	-784	1.00
Sub Total ==>	-26,958	-35,795	45.60
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-5,776	0	0.00
Ventilation Load	0	-44,559	56.76
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		1,853	-2.36
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-32,734	-78,501	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	0.0
Ra Plenum	77.0	0.0
Return	77.3	0.0
Ret/OA	85.2	0.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	3,901	1,585
Terminal	3,901	1,585
Main Fan	3,901	1,585
Sec Fan	0	0
Nom Vent	1,603	953
AHU Vent	1,603	953
Infil	17	17
MinStop/Rh	1,585	1,585
Return	3,852	1,601
Exhaust	1,555	0
Rm Exh	65	1
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	41.1	60.1
cfm/ft²	0.44	0.18
cfm/ton	378.38	
ft²/ton	867.40	
Btu/hr·ft²	13.83	-8.36
No. People	79	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	10.3	123.7	114.2	3,825	85.2	62.2	58.8	54.6	50.2	54.7
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	10.3	123.7								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	8,942		
Part	59,916		
Int Door	0		
ExFlr	0		
Roof	9,425	0	0
Wall	4,611	733	16
Ext Door	24	24	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	0.0	0	0.0	0.0
Aux Htg	-32.7	0	0.0	0.0
Preheat	-50.9	1,603	22.0	54.6
Reheat	-23.8	1,585	54.6	70.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-107.5			

System Checksums

By PB

Secondary - VAV w/ BB — **VAV w/Baseboard Skin Heating**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	2,588	2,588	8
Glass Solar	720	0	720	2
Glass/Door Cond	1,327	0	1,327	4
Wall Cond	348	212	560	2
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	81		81	0
Sub Total ==>	2,475	2,800	5,276	16
Internal Loads				
Lights	4,111	1,028	5,138	15
People	9,450	0	9,450	28
Misc	6,436	0	6,436	19
Sub Total ==>	19,997	1,028	21,024	62
Ceiling Load	1,712	-1,712	0	0
Ventilation Load	0	0	7,971	23
Adj Air Trans Heat	99		99	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-982	-982	-3
Sup. Fan Heat			330	1
Ret. Fan Heat		299	299	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	24,283	1,434	34,017	100.00

CLG SPACE PEAK

Mo/Hr: 6 / 17
OADB: 96

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	965	5
Glass/Door Cond	1,530	7
Wall Cond	468	2
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	89	0
Sub Total ==>	3,051	15
Internal Loads		
Lights	4,090	20
People	5,250	26
Misc	6,436	31
Sub Total ==>	15,776	77
Ceiling Load	1,563	8
Ventilation Load	0	0
Adj Air Trans Heat	99	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	20,488	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,952	10.60
Glass Solar	0	0	0.00
Glass/Door Cond	-3,646	-3,646	19.79
Wall Cond	-701	-1,144	6.21
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-205	-205	1.11
Sub Total ==>	-4,551	-6,946	37.70
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-1,587	0	0.00
Ventilation Load	0	-11,969	64.96
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		490	-2.66
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-6,138	-18,425	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	0.0
Ra Plenum	77.2	0.0
Return	77.5	0.0
Ret/OA	85.3	0.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	1,051	422
Terminal	1,051	422
Main Fan	1,051	422
Sec Fan	0	0
Nom Vent	431	256
AHU Vent	431	256
Infil	4	4
MinStop/Rh	422	422
Return	1,031	423
Exhaust	411	0
Rm Exh	25	3
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	41.0	60.6
cfm/ft²	0.42	0.17
cfm/ton	370.83	
ft²/ton	886.94	
Btu/hr·ft²	13.53	-7.97
No. People	21	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	2.8	34.0	30.8	1,031	85.3	61.9	57.3	54.7	49.5	52.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2.8	34.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	2,514		
Part	22,527		
Int Door	0		
ExFlr	0		
Roof	2,653	0	0
Wall	1,080	117	11
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	0.0	0	0.0	0.0
Aux Htg	-6.1	0	0.0	0.0
Preheat	-13.7	431	22.0	54.7
Reheat	-6.3	422	54.7	70.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-26.2			

System Checksums

By PB

CUHs - Vestibules **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 6 / 16
Outside Air: OADB/WB/HR: 98 / 64 / 47

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	244	244	16
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	200	103	303	20
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	8		8	1
Sub Total ==>	208	348	555	37
Internal Loads				
Lights	197	49	246	17
People	0	0	0	0
Misc	676	0	676	46
Sub Total ==>	873	49	922	62
Ceiling Load	196	-196	0	0
Ventilation Load	0	0	0	0
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-1	-1	0
Sup. Fan Heat			8	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	1,276	199	1,483	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	215	17
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	10	1
Sub Total ==>	225	17
Internal Loads		
Lights	197	15
People	0	0
Misc	676	52
Sub Total ==>	873	68
Ceiling Load	191	15
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	1,288	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-203	30.91
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-279	-427	64.93
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-29	-29	4.37
Sub Total ==>	-308	-659	100.21
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-197	0	0.00
Ventilation Load	0	0	0.00
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		1	-0.21
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-505	-657	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	77.9
Ra Plenum	77.3	67.6
Return	77.3	67.6
Ret/OA	77.3	67.6
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	66	66
Terminal	66	66
Main Fan	66	66
Sec Fan	0	0
Nom Vent	0	0
AHU Vent	0	0
Infil	1	1
MinStop/Rh	0	0
Return	67	67
Exhaust	1	1
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	0.0	0.0
cfm/ft²	0.25	0.25
cfm/ton	533.84	
ft²/ton	2,133.13	
Btu/hr·ft²	5.63	-2.49
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	0.1	1.5	1.5	66	77.3	58.8	54.9	54.9	50.1	53.8
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.1	1.5								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	264		
Part	2,111		
Int Door	0		
ExFlr	0		
Roof	278	0	0
Wall	358	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-0.7	66	67.6	77.9
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-0.7			

System Checksums

By PB

DUMMY **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 5 / 9
Outside Air: OADB/WB/HR: 70 / 48 / 21

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	1	0	1	0
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	-1		-1	0
Sub Total ==>	0	0	0	0
Internal Loads				
Lights	0	0	0	0
People	0	0	0	0
Misc	0	0	0	0
Sub Total ==>	0	0	0	0
Ceiling Load	0	0	0	0
Ventilation Load	0	0	0	0
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			0	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	0	0	0	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	1	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	0	0
Sub Total ==>	1	0
Internal Loads		
Lights	0	0
People	0	0
Misc	0	0
Sub Total ==>	0	0
Ceiling Load	0	0
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
***Grand Total* ==>**	1	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	-8	-8	91.95
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-1	-1	8.05
Sub Total ==>	-8	-8	100.00
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	0	0	0.00
Ventilation Load	0	0	0.00
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-8	-8	100.00

TEMPERATURES

	Cooling	Heating
SADB	80.0	55.0
Ra Plenum	80.0	55.0
Return	80.0	55.0
Ret/OA	80.0	55.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	0	0
Terminal	0	0
Main Fan	0	0
Sec Fan	0	0
Nom Vent	0	0
AHU Vent	0	0
Infil	0	0
MinStop/Rh	0	0
Return	0	0
Exhaust	0	0
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	0.0	0.0
cfm/ft²	0.00	0.00
cfm/ton	0.00	
ft²/ton	0.00	
Btu/hr·ft²	0.00	0.00
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	10		
Part	890		
Int Door	0		
ExFlr	0		
Roof	10	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	0.0	0	0.0	0.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	55.0	80.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	0.0			

System Checksums

By PB

FCU - Elec — **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	151	151	0
Glass Solar	0	0	0	0
Glass/Door Cond	254	0	254	0
Wall Cond	35	24	59	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	3		3	0
Sub Total ==>	293	175	468	0
Internal Loads				
Lights	349	87	437	0
People	0	0	0	0
Misc	380	0	380	0
Sub Total ==>	729	87	817	0
Ceiling Load	47	-47	0	0
Ventilation Load	0	0	8,296,135	124
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-1,597,938	-1,597,938	-24
Sup. Fan Heat			26	0
Ret. Fan Heat		5	5	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	1,069	-1,597,717	6,699,513	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	297	26
Wall Cond	42	4
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	8	1
Sub Total ==>	346	31
Internal Loads		
Lights	349	31
People	0	0
Misc	380	34
Sub Total ==>	729	65
Ceiling Load	48	4
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	1,123	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-118	1.05
Glass Solar	0	0	0.00
Glass/Door Cond	-687	-687	6.11
Wall Cond	-88	-152	1.35
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-16	-16	0.14
Sub Total ==>	-791	-974	8.66
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-32	0	0.00
Ventilation Load	0	-10,416	92.67
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		150	-1.33
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-824	-11,239	100.00

TEMPERATURES

	Cooling	Heating
SADB	69.8	73.8
Ra Plenum	76.0	69.3
Return	76.0	69.3
Ret/OA	96.2	22.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	223	223
Terminal	223	223
Main Fan	223	223
Sec Fan	0	0
Nom Vent	826,263	223
AHU Vent	826,263	223
Infil	0	0
MinStop/Rh	0	0
Return	826,264	223
Exhaust	1,652,305	223
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	100.0	100.0
cfm/ft²	1.50	1.50
cfm/ton	0.17	
ft²/ton	0.11	
Btu/hr·ft²	104,357.32	256,651.11
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	1,290.9	15,490.5	15,490.5	223	96.2	64.9	55.2	69.7	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1,290.9	15,490.5								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	148		
Part	1,181		
Int Door	0		
ExFlr	0		
Roof	156	0	0
Wall	126	0	0
Ext Door	24	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-38,096.7	223	94.5	73.8
Aux Htg	0.0	0	0.0	0.0
Preheat	-10.4	223	22.0	69.7
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-38,096.7			

System Checksums

By PB

FCU - Evid Dep — **Fan Coil**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	445	445	12
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	272	133	404	11
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	11		11	0
Sub Total ==>	283	578	861	24
Internal Loads				
Lights	708	177	885	24
People	0	0	0	0
Misc	1,050	0	1,050	29
Sub Total ==>	1,758	177	1,935	53
Ceiling Load	384	-384	0	0
Ventilation Load	0	0	965	27
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-144	-144	-4
Sup. Fan Heat			4	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	2,425	227	3,621	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	406	16
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	7	0
Sub Total ==>	413	17
Internal Loads		
Lights	708	28
People	0	0
Misc	1,050	42
Sub Total ==>	1,758	70
Ceiling Load	326	13
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing		
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	2,497	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-316	9.46
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-526	-805	24.11
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-27	-27	0.82
Sub Total ==>	-554	-1,148	34.39
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-302	0	0.00
Ventilation Load	0	-2,303	68.99
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		113	-3.38
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-856	-3,338	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	76.9
Ra Plenum	78.0	67.7
Return	78.0	67.7
Ret/OA	85.0	50.1
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	128	128
Terminal	128	128
Main Fan	128	128
Sec Fan	0	0
Nom Vent	49	49
AHU Vent	49	49
Infil	1	1
MinStop/Rh	0	0
Return	129	129
Exhaust	50	50
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	38.4	38.4
cfm/ft²	0.31	0.31
cfm/ton	418.28	
ft²/ton	1,339.64	
Btu/hr·ft²	8.96	-8.14
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	0.3	3.7	3.7	128	85.0	61.6	56.3	55.0	50.8	56.3
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.3	3.7								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	410		
Part	1,124		
Int Door	0		
ExFlr	0		
Roof	432	0	0
Wall	674	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-3.3	128	50.1	76.9
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.6	128	50.1	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-3.3			

System Checksums

By PB

FCU - Mech **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	718	0	718	0
Glass Solar	0	0	0	0
Glass/Door Cond	522	0	522	0
Wall Cond	426	0	426	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	24		24	0
Sub Total ==>	1,691	0	1,691	1
Internal Loads				
Lights	1,311	0	1,311	1
People	2	0	2	0
Misc	1,686	0	1,686	1
Sub Total ==>	2,999	0	2,999	1
Ceiling Load	0	0	0	0
Ventilation Load	0	0	220,296	98
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			109	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	4,690	0	225,096	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	697	14
Glass Solar	0	0
Glass/Door Cond	590	12
Wall Cond	536	11
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	53	1
Sub Total ==>	1,876	38
Internal Loads		
Lights	1,311	27
People	1	0
Misc	1,686	35
Sub Total ==>	2,998	62
Ceiling Load	0	0
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
***Grand Total* ==>**	4,874	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	-533	-533	1.16
Glass Solar	0	0	0.00
Glass/Door Cond	-1,305	-1,305	2.84
Wall Cond	-911	-911	1.98
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-111	-111	0.24
Sub Total ==>	-2,861	-2,861	6.22
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	0	0	0.00
Ventilation Load	0	-43,148	93.78
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-2,861	-46,008	100.00

TEMPERATURES

	Cooling	Heating
SADB	69.6	73.2
Ra Plenum	75.0	70.0
Return	75.0	70.0
Ret/OA	96.2	22.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	922	922
Terminal	922	922
Main Fan	922	922
Sec Fan	0	0
Nom Vent	21,522	922
AHU Vent	21,522	922
Infil	2	2
MinStop/Rh	0	0
Return	21,525	925
Exhaust	42,124	925
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	100.0	100.0
cfm/ft²	1.40	1.40
cfm/ton	24.60	
ft²/ton	17.57	
Btu/hr·ft²	682.87	-1,532.44
No. People	1	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	37.5	449.9	449.9	922	96.2	64.9	55.2	69.5	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	37.5	449.9								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	659		
Part	1,590		
Int Door	0		
ExFlr	0		
Roof	694	0	0
Wall	749	0	0
Ext Door	45	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-1,009.6	922	2,050.0	73.2
Aux Htg	0.0	0	0.0	0.0
Preheat	-42.7	922	22.0	69.5
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-1,009.6			

System Checksums

By PB

FCU - TR#1 **Fan Coil**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	148	148	10
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	45	22	68	4
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	3		3	0
Sub Total ==>	48	171	219	14
Internal Loads				
Lights	349	87	437	28
People	450	0	450	29
Misc	381	0	381	25
Sub Total ==>	1,181	87	1,268	82
Ceiling Load	96	-96	0	0
Ventilation Load	0	0	80	5
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-18	-18	-1
Sup. Fan Heat			2	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	1,325	144	1,552	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	54	5
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	8	1
Sub Total ==>	62	5
Internal Loads		
Lights	349	31
People	250	22
Misc	381	33
Sub Total ==>	981	86
Ceiling Load	98	9
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	1,141	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-117	16.39
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-114	-175	24.57
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-16	-16	2.27
Sub Total ==>	-130	-309	43.23
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-66	0	0.00
Ventilation Load	0	-418	58.56
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		13	-1.79
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-197	-714	100.00

TEMPERATURES

	Cooling	Heating
SADB	60.6	72.5
Ra Plenum	77.0	68.6
Return	77.0	68.6
Ret/OA	79.2	63.5
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	81	81
Terminal	81	81
Main Fan	81	81
Sec Fan	0	0
Nom Vent	9	9
AHU Vent	9	9
Infil	0	0
MinStop/Rh	0	0
Return	82	82
Exhaust	9	9
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	11.0	11.0
cfm/ft²	0.55	0.55
cfm/ton	628.17	
ft²/ton	1,152.11	
Btu/hr·ft²	10.42	-4.79
No. People	1	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	0.1	1.6	1.5	81	79.2	62.9	72.2	60.6	56.3	70.6
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.1	1.6								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	149		
Part	1,177		
Int Door	0		
ExFlr	0		
Roof	157	0	0
Wall	146	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-0.7	81	63.5	72.5
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-0.7			

System Checksums

By PB

FCU - TR#2 **Fan Coil**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	117	117	9
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	2		2	0
Sub Total ==>	2	117	119	9
Internal Loads				
Lights	349	87	437	32
People	450	0	450	33
Misc	313	0	313	23
Sub Total ==>	1,112	87	1,200	87
Ceiling Load	78	-78	0	0
Ventilation Load	0	0	67	5
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-15	-15	-1
Sup. Fan Heat			2	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	1,192	112	1,373	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	4	0
Sub Total ==>	4	0
Internal Loads		
Lights	349	35
People	250	25
Misc	313	31
Sub Total ==>	912	92
Ceiling Load	80	8
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	996	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-97	21.95
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-8	-8	1.85
Sub Total ==>	-8	-105	23.79
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-37	0	0.00
Ventilation Load	0	-343	77.79
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		7	-1.59
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-45	-441	100.00

TEMPERATURES

	Cooling	Heating
SADB	59.0	70.7
Ra Plenum	77.0	69.0
Return	77.0	69.0
Ret/OA	79.2	63.7
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	64	64
Terminal	64	64
Main Fan	64	64
Sec Fan	0	0
Nom Vent	7	7
AHU Vent	7	7
Infil	0	0
MinStop/Rh	0	0
Return	64	64
Exhaust	8	8
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	11.4	11.4
cfm/ft²	0.52	0.52
cfm/ton	559.87	
ft²/ton	1,068.20	
Btu/hr·ft²	11.23	-3.61
No. People	1	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.1	1.4	1.3	64	79.3	62.9	71.9	59.0	55.4	69.1
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.1	1.4								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	122		
Part	1,304		
Int Door	0		
ExFlr	0		
Roof	129	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-0.4	64	63.7	70.7
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-0.4			

System Checksums

By PB

Primary - FPTU w/ Reheat

Parallel Fan-Powered VAV, Htg Coil on Plenum Inlet

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	9,121	9,121	8
Glass Solar	4,591	0	4,591	4
Glass/Door Cond	8,734	0	8,734	7
Wall Cond	1,481	1,024	2,505	2
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	273		273	0
Sub Total ==>	15,080	10,145	25,225	21
Internal Loads				
Lights	11,293	2,823	14,116	12
People	35,550	0	35,550	29
Misc	22,523	0	22,523	19
Sub Total ==>	69,367	2,823	72,190	59
Ceiling Load	5,578	-5,578	0	0
Ventilation Load	0	0	24,278	20
Adj Air Trans Heat	193		193	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-3,192	-3,192	-3
Sup. Fan Heat			1,525	1
Ret. Fan Heat		1,141	1,141	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	90,218	5,339	121,361	100.00

CLG SPACE PEAK

Mo/Hr: 6 / 16
OADB: 98

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	4,602	6
Glass/Door Cond	10,140	13
Wall Cond	1,623	2
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	372	0
Sub Total ==>	16,736	22
Internal Loads		
Lights	11,320	15
People	19,750	26
Misc	22,523	30
Sub Total ==>	53,594	71
Ceiling Load	5,445	7
Ventilation Load	0	0
Adj Air Trans Heat	193	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	75,968	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-6,990	6.58
Glass Solar	0	0	0.00
Glass/Door Cond	-23,472	-23,472	22.08
Wall Cond	-2,701	-4,644	4.37
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-784	-784	0.74
Sub Total ==>	-26,958	-35,891	33.76
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-4,630	0	0.00
Ventilation Load	0	-69,679	65.55
Adj Air Trans Heat	-453	-453	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		2,320	-2.18
OA Preheat Diff.		0	0.00
RA Preheat Diff.		-2,595	2.44
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-32,041	-106,297	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	82.0
Ra Plenum	77.0	68.4
Return	77.3	68.4
Ret/OA	84.5	27.5
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.1

AIRFLOWS

	Cooling	Heating
Diffuser	3,977	2,735
Terminal	3,977	2,735
Main Fan	3,977	1,689
Sec Fan	0	1,046
Nom Vent	1,490	1,490
AHU Vent	1,490	1,490
Infil	17	17
MinStop/Rh	1,689	1,689
Return	3,929	1,656
Exhaust	1,441	1,457
Rm Exh	65	50
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	37.5	54.5
cfm/ft²	0.44	0.12
cfm/ton	393.28	
ft²/ton	884.20	
Btu/hr·ft²	13.57	-11.81
No. People	79	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	10.1	121.4	112.2	3,900	84.5	62.1	59.6	55.0	50.6	55.7
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	10.1	121.4								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	8,942		
Part	59,916		
Int Door	0		
ExFlr	0		
Roof	9,425	0	0
Wall	4,611	733	16
Ext Door	24	24	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-57.7	1,046	68.4	125.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-47.9	1,490	22.0	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-105.6			

System Checksums

By PB

Secondary - FPTU w/ Reheat — **Parallel Fan-Powered VAV, Htg Coil on Plenum Inlet**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 96 / 65 / 55

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	2,588	2,588	8
Glass Solar	720	0	720	2
Glass/Door Cond	1,327	0	1,327	4
Wall Cond	348	212	560	2
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	81		81	0
Sub Total ==>	2,475	2,800	5,276	16
Internal Loads				
Lights	4,111	1,028	5,138	15
People	9,450	0	9,450	28
Misc	6,436	0	6,436	19
Sub Total ==>	19,997	1,028	21,024	62
Ceiling Load	1,712	-1,712	0	0
Ventilation Load	0	0	7,971	23
Adj Air Trans Heat	99		99	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-982	-982	-3
Sup. Fan Heat			330	1
Ret. Fan Heat		299	299	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	24,283	1,434	34,017	100.00

CLG SPACE PEAK

Mo/Hr: 6 / 17
OADB: 96

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	965	5
Glass/Door Cond	1,530	7
Wall Cond	468	2
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	89	0
Sub Total ==>	3,051	15
Internal Loads		
Lights	4,090	20
People	5,250	26
Misc	6,436	31
Sub Total ==>	15,776	77
Ceiling Load	1,563	8
Ventilation Load	0	0
Adj Air Trans Heat	99	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
***Grand Total* ==>**	20,488	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 22

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,964	7.37
Glass Solar	0	0	0.00
Glass/Door Cond	-3,646	-3,646	13.68
Wall Cond	-701	-1,153	4.33
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-205	-205	0.77
Sub Total ==>	-4,551	-6,968	26.15
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-1,362	0	0.00
Ventilation Load	0	-19,758	74.14
Adj Air Trans Heat	-312	-312	1
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		669	-2.51
OA Preheat Diff.		-281	1.05
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-6,225	-26,649	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	79.8
Ra Plenum	77.2	68.3
Return	77.5	68.3
Ret/OA	85.3	22.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.1

AIRFLOWS

	Cooling	Heating
Diffuser	1,051	654
Terminal	1,051	654
Main Fan	1,051	422
Sec Fan	0	231
Nom Vent	431	422
AHU Vent	431	422
Infil	4	4
MinStop/Rh	422	422
Return	1,031	402
Exhaust	411	402
Rm Exh	25	25
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	41.0	64.6
cfm/ft²	0.42	0.09
cfm/ton	370.83	
ft²/ton	886.94	
Btu/hr·ft²	13.53	-10.55
No. People	21	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	2.8	34.0	30.8	1,031	85.3	61.9	57.3	54.7	49.5	52.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2.8	34.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	2,514		
Part	22,527		
Int Door	0		
ExFlr	0		
Roof	2,653	0	0
Wall	1,080	117	11
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-12.8	231	68.3	125.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-13.7	431	22.0	54.7
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-26.5			

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By PB

System Ventilation Requirements

AHU Location	Description		∑Vpz cfm	Ps People	∑ Pz People	D Ps / ∑Pz	Vou cfm	Vps cfm	Xs	Ev	Vot cfm	%OA Vot / Vps
Alternative 1												
Zone	Default System	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	System - 002	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	System - 003	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	System - 004	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	System - 005	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	System - 006	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	System - 007	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	System - 008	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	System - 009	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	System - 010	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	System - 011	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	System - 012	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	System - 013	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	System - 014	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0

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System Ventilation Requirements

AHU Location	Description		∑Vpz cfm	Ps People	∑ Pz People	D Ps / ∑Pz	Vou cfm	Vps cfm	Xs	Ev	Vot cfm	%OA Vot / Vps
Alternative 1												
Zone	System - 015	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	System - 016	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	System - 017	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0

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Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	— Cooling — Ez	— Cooling — Voz cfm	— Heating — Ez	— Heating — Voz cfm
Alternative 1									
Default	0.00	0.00	0.00	0	0		0		0
Default System	0.00	0.00	0.00	0	0		0		0
CORE - SECONDARY	0.00	0.00	0.00	0	0		0		0
System - 002	0.00	0.00	0.00	0	0		0		0
WEST - SECONDARY	0.00	0.00	0.00	0	0		0		0
System - 003	0.00	0.00	0.00	0	0		0		0
CORE AND SOUTH - PRIMARY	0.00	0.00	0.00	0	0		0		0
System - 004	0.00	0.00	0.00	0	0		0		0
System - 005	0.00	0.00	0.00	0	0		0		0
System - 006	0.00	0.00	0.00	0	0		0		0
System - 007	0.00	0.00	0.00	0	0		0		0
SOUTH VEST	0.00	0.00	0.00	0	0		0		0
System - 008	0.00	0.00	0.00	0	0		0		0
SOUTHWEST INTERVIEW	0.00	0.00	0.00	0	0		0		0
System - 009	0.00	0.00	0.00	0	0		0		0
EVID DEPOSITORY	0.00	0.00	0.00	0	0		0		0
System - 010	0.00	0.00	0.00	0	0		0		0
WEST VEST	0.00	0.00	0.00	0	0		0		0
System - 011	0.00	0.00	0.00	0	0		0		0
MECHANICAL ROOM	0.00	0.00	0.00	0	0		0		0
System - 012	0.00	0.00	0.00	0	0		0		0
ELEC RM	0.00	0.00	0.00	0	0		0		0
System - 013	0.00	0.00	0.00	0	0		0		0
NORTH VEST	0.00	0.00	0.00	0	0		0		0
System - 014	0.00	0.00	0.00	0	0		0		0
NORTH OFFICES	0.00	0.00	0.00	0	0		0		0
System - 015	0.00	0.00	0.00	0	0		0		0
EAST OFFICES	0.00	0.00	0.00	0	0		0		0
System - 016	0.00	0.00	0.00	0	0		0		0
ADMIN / OPS	0.00	0.00	0.00	0	0		0		0
System - 017	0.00	0.00	0.00	0	0		0		0

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Ventilation Calculations for Cooling Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz
Alternative 1													
Default		0	0	0	0	0							0.000
Default System		0	0	0	0	0							0.000
CORE - SECONDARY		0	0	0	0	0							0.000
System - 002		0	0	0	0	0							0.000
WEST - SECONDARY		0	0	0	0	0							0.000
System - 003		0	0	0	0	0							0.000
CORE AND SOUTH - PRIMARY		0	0	0	0	0							0.000
System - 004		0	0	0	0	0							0.000
System - 005		0	0	0	0	0							0.000
System - 006		0	0	0	0	0							0.000
System - 007		0	0	0	0	0							0.000
SOUTH VEST		0	0	0	0	0							0.000
System - 008		0	0	0	0	0							0.000
SOUTHWEST INTERVIEW		0	0	0	0	0							0.000
System - 009		0	0	0	0	0							0.000
EVID DEPOSITORY		0	0	0	0	0							0.000
System - 010		0	0	0	0	0							0.000
WEST VEST		0	0	0	0	0							0.000
System - 011		0	0	0	0	0							0.000
MECHANICAL ROOM		0	0	0	0	0							0.000
System - 012		0	0	0	0	0							0.000
ELEC RM		0	0	0	0	0							0.000
System - 013		0	0	0	0	0							0.000
NORTH VEST		0	0	0	0	0							0.000
System - 014		0	0	0	0	0							0.000
NORTH OFFICES		0	0	0	0	0							0.000
System - 015		0	0	0	0	0							0.000
EAST OFFICES		0	0	0	0	0							0.000
System - 016		0	0	0	0	0							0.000
ADMIN / OPS		0	0	0	0	0							0.000
System - 017		0	0	0	0	0							0.000

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Ventilation Calculations for Heating Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz
Alternative 1													
Default		0	0	0	0	0							0.000
Default System		0	0	0	0	0							0.000
CORE - SECONDARY		0	0	0	0	0							0.000
System - 002		0	0	0	0	0							0.000
WEST - SECONDARY		0	0	0	0	0							0.000
System - 003		0	0	0	0	0							0.000
CORE AND SOUTH - PRIMARY		0	0	0	0	0							0.000
System - 004		0	0	0	0	0							0.000
System - 005		0	0	0	0	0							0.000
System - 006		0	0	0	0	0							0.000
System - 007		0	0	0	0	0							0.000
SOUTH VEST		0	0	0	0	0							0.000
System - 008		0	0	0	0	0							0.000
SOUTHWEST INTERVIEW		0	0	0	0	0							0.000
System - 009		0	0	0	0	0							0.000
EVID DEPOSITORY		0	0	0	0	0							0.000
System - 010		0	0	0	0	0							0.000
WEST VEST		0	0	0	0	0							0.000
System - 011		0	0	0	0	0							0.000
MECHANICAL ROOM		0	0	0	0	0							0.000
System - 012		0	0	0	0	0							0.000
ELEC RM		0	0	0	0	0							0.000
System - 013		0	0	0	0	0							0.000
NORTH VEST		0	0	0	0	0							0.000
System - 014		0	0	0	0	0							0.000
NORTH OFFICES		0	0	0	0	0							0.000
System - 015		0	0	0	0	0							0.000
EAST OFFICES		0	0	0	0	0							0.000
System - 016		0	0	0	0	0							0.000
ADMIN / OPS		0	0	0	0	0							0.000
System - 017		0	0	0	0	0							0.000

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System Ventilation Requirements

AHU Location	Description		∑Vpz cfm	Ps People	∑ Pz People	D Ps / ∑Pz	Vou cfm	Vps cfm	Xs	Ev	Vot cfm	%OA Vot / Vps
Alternative 2												
System	Primary - VAV w/ BB	Cooling	4,053	79	79	1.00	953	3,901	0.244	0.594	1,603	41.1
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
System	Secondary - VAV w/ BB	Cooling	1,084	21	21	1.00	256	1,051	0.243	0.593	431	41.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	DUMMY	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	CUHs - Vestibules	Cooling	66	0	0	1.00	0	66	0.000	1.000	0	0.0
		Heating	66	0	0	1.00	0	66	0.000	1.000	0	0.0
Zone	FCU - Elec	Cooling	223	0	0	1.00	223	223	1.000	1.000	223	100.0
		Heating	223	0	0	1.00	223	223	1.000	1.000	223	100.0
Room	FCU - Evid Dep	Cooling	128	0	0	1.00	49	128	0.384	1.000	49	38.4
		Heating	128	0	0	1.00	49	128	0.384	1.000	49	38.4
Room	FCU - TR#1	Cooling	81	1	1	1.00	9	81	0.110	1.000	9	11.0
		Heating	81	1	1	1.00	9	81	0.110	1.000	9	11.0
Room	FCU - TR#2	Cooling	64	1	1	1.00	7	64	0.114	1.000	7	11.4
		Heating	64	1	1	1.00	7	64	0.114	1.000	7	11.4
Zone	FCU - Mech	Cooling	922	1	1	1.00	922	922	1.000	1.000	922	100.0
		Heating	922	1	1	1.00	922	922	1.000	1.000	922	100.0

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Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	— Cooling — Ez	— Cooling — Voz cfm	— Heating — Ez	— Heating — Voz cfm
Alternative 2									
M247 ADMIN / OPS ROOM	5.00	3.00	0.06	680	56	1.00	56	0.00	0
ADMIN / OPS	5.00	3.00	0.06	680	56		56		0
M248 INVESTIGATIVE OPS TECH ROOM	5.00	1.00	0.06	120	12	1.00	12	0.00	0
M249 INVESTIGATIVE OPS TECH ROOM	5.00	1.00	0.06	122	12	1.00	12	0.00	0
M250 CRIMINAL INTEL ROOM	5.00	1.00	0.06	117	12	1.00	12	0.00	0
M251 SAC	5.00	1.00	0.06	203	17	1.00	17	0.00	0
EAST OFFICES	5.00	4.00	0.06	562	54		54		0
M252 CRIMINAL INVESTIGATOR ROOM	5.00	1.00	0.06	112	12	1.00	12	0.00	0
M256 SUPERVISOR TEAM ROOM	5.00	2.00	0.06	188	21	1.00	21	0.00	0
M257 SR TEAM ROOM	5.00	2.00	0.06	178	21	1.00	21	0.00	0
NORTHEAST OFFICES	5.00	5.00	0.06	478	54		54		0
M253 CORRIDOR	0.00	0.00	0.06	304	18	1.00	18	0.00	0
M299A CORRIDOR	0.00	0.00	0.06	380	23	1.00	23	0.00	0
M253 / M299A CORRIDORS	0.00	0.00	0.06	684	41		41		0
M254 COMMAND CONFERENCE ROOM	5.00	18.00	0.06	507	120	1.00	120	0.00	0
COMMAND CONF	5.00	18.00	0.06	507	120		120		0
M255 VISITOR WAITING AREA	5.00	4.00	0.06	309	39	1.00	39	0.00	0
M265 DRUG SUPPRESSION TEAM ROOM	5.00	5.00	0.06	628	63	1.00	63	0.00	0
DRUG SUPPRESSION TEAM/WAITING	5.00	9.00	0.06	937	101		101		0
M258 SR TEAM ROOM	5.00	2.00	0.06	188	21	1.00	21	0.00	0
M259 SPECIAL AGENT ROOM	5.00	2.00	0.06	178	21	1.00	21	0.00	0
M260 SPECIAL AGENT ROOM	5.00	2.00	0.06	188	21	1.00	21	0.00	0
M261 SPECIAL AGENT ROOM	5.00	2.00	0.06	181	21	1.00	21	0.00	0
NORTH OFFICES	5.00	8.00	0.06	735	84		84		0
M262 CORRIDOR	0.00	0.00	0.06	143	9	1.00	9	0.00	0
M295 WOMEN	0.00	0.00	0.00	203	0	1.00	0	0.00	0
M296 MEN	0.00	0.00	0.00	203	0	1.00	0	0.00	0
M297 WOMEN SHOWERS	0.00	0.00	0.00	72	0	1.00	0	0.00	0
M298 MEN SHOWERS	0.00	0.00	0.00	72	0	1.00	0	0.00	0
M263 JANITOR	0.00	0.00	0.00	36	0	1.00	0	0.00	0
RESTROOMS	0.00	0.00	0.01	728	9		9		0

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Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	— Cooling — Ez	— Cooling — Voz cfm	— Heating — Ez	— Heating — Voz cfm
Alternative 2									
M264 MULTI-PURPOSE LOUNGE	5.00	16.00	0.06	649	119	1.00	119	0.00	0
MULTIPURPOSE LOUNGE	5.00	16.00	0.06	649	119		119		0
M267 SPECIAL AGENT ROOM	5.00	2.00	0.06	188	21	1.00	21	0.00	0
M268 SPECIAL AGENT ROOM	5.00	2.00	0.06	185	21	1.00	21	0.00	0
NORTHWEST OFFICES	5.00	4.00	0.06	374	42		42		0
M272 TOE STORAGE	0.00	0.00	0.12	608	73	1.00	73	0.00	0
TOE STOR	0.00	0.00	0.12	608	73		73		0
M281 LARGE INTERVIEW ROOM	5.00	8.00	0.06	253	55	1.00	55	0.00	0
M282 DST TEAM LEADER ROOM	5.00	1.00	0.06	156	14	1.00	14	0.00	0
SOUTH INTERVIEW	5.00	9.00	0.06	408	69		69		0
M287 SECURE STORAGE	0.00	0.00	0.12	161	19	1.00	19	0.00	0
M289 STORAGE - SUPPLIES ROOM	0.00	0.00	0.12	167	20	1.00	20	0.00	0
M293 SMALL INTERVIEW ROOM #5	5.00	2.00	0.06	129	18	1.00	18	0.00	0
M301 CORRIDOR	0.00	0.00	0.06	190	11	1.00	11	0.00	0
STOR RMS / SM INTERVIEW	5.00	2.00	0.09	647	68		68		0
M299 CORRIDOR	0.00	0.00	0.06	491	29	1.00	29	0.00	0
M300B CORRIDOR	0.00	0.00	0.06	325	19	1.00	19	0.00	0
M291 CIC	5.00	1.00	0.06	129	13	1.00	13	0.00	0
Primary - VAV w/ BB	5.00	79.00	0.06	8,942	953		953		0
M273 EVIDENCE PROCESSING ROOM	5.00	1.00	0.06	245	20	1.00	20	0.00	0
M278 DUTY AGENT ROOM	5.00	0.00	0.06	153	9	1.00	9	0.00	0
EVID PROCG / DUTY AGENT	5.00	1.00	0.06	398	29		29		0
M277 EVIDENCE CUSTODIAN ROOM	5.00	1.00	0.06	180	16	1.00	16	0.00	0
M279 SMALL INTERVIEW ROOM #1	5.00	2.00	0.06	151	19	1.00	19	0.00	0
M280 SMALL INTERVIEW ROOM #2	5.00	2.00	0.06	148	19	1.00	19	0.00	0
M274 PHOTO ID ROOM	5.00	1.00	0.06	121	12	1.00	12	0.00	0
SOUTHWEST INTERVIEW	5.00	6.00	0.06	600	66		66		0
M283 POLYGRAPH OFFICE	5.00	2.00	0.06	146	19	1.00	19	0.00	0
M284 POLYGRAPH EXAM ROOM	5.00	2.00	0.06	143	19	1.00	19	0.00	0
M285 SUSPECT WAITING ROOM	5.00	4.00	0.06	139	28	1.00	28	0.00	0
M286 SUSPECT TOILET ROOM	5.00	0.00	0.06	57	3	1.00	3	0.00	0

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Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	— Cooling — Ez	— Cooling — Voz cfm	— Heating — Ez	— Heating — Voz cfm
Alternative 2									
M294 OBSERVATION ROOM	5.00	2.00	0.06	125	18	1.00	18	0.00	0
SUSPECT WAIT / POLYGRAPH	5.00	10.00	0.06	611	87		87		0
M288 SMALL INTERVIEW ROOM #3	5.00	2.00	0.06	161	20	1.00	20	0.00	0
M290 SMALL INTERVIEW ROOM #4	5.00	2.00	0.06	167	20	1.00	20	0.00	0
SML INTERVIEW RMS	5.00	4.00	0.06	328	40		40		0
M300 CORRIDOR	0.00	0.00	0.06	578	35	1.00	35	0.00	0
Secondary - VAV w/ BB	5.00	21.00	0.06	2,514	256		256		0
Default	0.00	0.00	0.00	0	0		0		0
DUMMY	0.00	0.00	0.00	0	0		0		0
M266 VESTIBULE NORTH	0.00	0.00	0.00	62	0	1.00	0	1.00	0
NORTH VEST	0.00	0.00	0.00	62	0		0		0
M275 VESTIBULE WEST	0.00	0.00	0.00	62	0	1.00	0	1.00	0
WEST VEST	0.00	0.00	0.00	62	0		0		0
M300F SOUTH VEST	0.00	0.00	0.00	141	0	1.00	0	1.00	0
SOUTH VEST	0.00	0.00	0.00	141	0		0		0
CUHs - Vestibules	0.00	0.00	0.00	264	0		0		0
M270 ELECTRICAL ROOM	0.00	0.00	10.00	148	223	1.00	223	1.00	223
ELEC RM	0.00	0.00	1.50	148	223		223		223
FCU - Elec	0.00	0.00	1.50	148	223		223		223
M276 EVIDENCE DEPOSITORY ROOM	0.00	0.00	0.12	410	49	1.00	49	1.00	49
EVID DEPOSITORY	0.00	0.00	0.12	410	49		49		49
FCU - Evid Dep	0.00	0.00	0.12	410	49		49		49
M269 TR #1	0.00	1.00	0.06	149	9	1.00	9	1.00	9
FCU - TR#1	0.00	1.00	0.06	149	9		9		9
M292 TR #2	0.00	1.00	0.06	122	7	1.00	7	1.00	7
FCU - TR#2	0.00	1.00	0.06	122	7		7		7
M271 MECHANICAL ROOM	0.00	1.00	6.00	659	922	1.00	922	1.00	922
MECHANICAL ROOM	0.00	1.00	1.40	659	922		922		922
FCU - Mech	0.00	1.00	1.40	659	922		922		922

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Ventilation Calculations for Cooling Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 2														
M247 ADMIN / OPS ROOM	Shutoff VAV	308	308	308	93	56	0.603	1.00	0.00	1.00	1.00	1.00	0.641	
ADMIN / OPS		308	308	308	93	56							0.641	
M248 INVESTIGATIVE OPS TECH	Shutoff VAV	88	88	88	26	12	0.464	1.00	0.00	1.00	1.00	1.00	0.780	
M249 INVESTIGATIVE OPS TECH	Shutoff VAV	88	88	88	26	12	0.467	1.00	0.00	1.00	1.00	1.00	0.777	
M250 CRIMINAL INTEL ROOM	Shutoff VAV	87	87	87	26	12	0.462	1.00	0.00	1.00	1.00	1.00	0.783	
M251 SAC	Shutoff VAV	167	167	167	50	17	0.342	1.00	0.00	1.00	1.00	1.00	0.902	
EAST OFFICES		430	430	430	129	54							0.777	
M252 CRIMINAL INVESTIGATOR	Shutoff VAV	69	69	69	21	12	0.566	1.00	0.00	1.00	1.00	1.00	0.679	
M256 SUPERVISOR TEAM ROOM	Shutoff VAV	104	104	104	33	21	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
M257 SR TEAM ROOM	Shutoff VAV	102	102	102	32	21	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
NORTHEAST OFFICES		274	274	274	85	54							0.594	
M253 CORRIDOR	Shutoff VAV	62	62	62	28	18	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
M299A CORRIDOR	Shutoff VAV	63	63	63	35	23	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
M253 / M299A CORRIDORS		125	125	125	63	41							0.594	
M254 COMMAND CONFERENCE	Shutoff VAV	357	357	357	185	120	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
COMMAND CONF		357	357	357	185	120							0.594	
M255 VISITOR WAITING AREA	Shutoff VAV	112	112	112	59	39	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
M265 DRUG SUPPRESSION TEA	Shutoff VAV	371	371	371	111	63	0.563	1.00	0.00	1.00	1.00	1.00	0.681	
DRUG SUPPRESSION TEAM/WAITI		483	483	483	171	101							0.594	
M258 SR TEAM ROOM	Shutoff VAV	104	104	104	33	21	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
M259 SPECIAL AGENT ROOM	Shutoff VAV	102	102	102	32	21	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
M260 SPECIAL AGENT ROOM	Shutoff VAV	104	104	104	33	21	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
M261 SPECIAL AGENT ROOM	Shutoff VAV	104	104	104	32	21	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
NORTH OFFICES		413	413	413	129	84							0.594	
M262 CORRIDOR	Shutoff VAV	62	62	62	19	9	0.459	1.00	0.00	1.00	1.00	1.00	0.786	
M295 WOMEN	Shutoff VAV	50	50	50	15	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	
M296 MEN	Shutoff VAV	47	47	47	14	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	
M297 WOMEN SHOWERS	Shutoff VAV	7	7	7	2	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	
M298 MEN SHOWERS	Shutoff VAV	13	13	13	4	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	
M263 JANITOR	Shutoff VAV	9	9	9	3	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	
RESTROOMS		187	187	187	56	9							0.786	
M264 MULTI-PURPOSE LOUNGE	Shutoff VAV	361	361	361	183	119	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
MULTIPURPOSE LOUNGE		361	361	361	183	119							0.594	

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System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 2														
M267 SPECIAL AGENT ROOM	Shutoff VAV	106	106	106	33	21	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
M268 SPECIAL AGENT ROOM	Shutoff VAV	103	103	103	33	21	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
NORTHWEST OFFICES		209	209	209	65	42							0.594	
M272 TOE STORAGE	Shutoff VAV	214	214	214	112	73	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
TOE STOR		214	214	214	112	73							0.594	
M281 LARGE INTERVIEW ROOM	Shutoff VAV	205	205	205	85	55	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
M282 DST TEAM LEADER ROOM	Shutoff VAV	91	91	91	27	14	0.524	1.00	0.00	1.00	1.00	1.00	0.720	
SOUTH INTERVIEW		296	296	296	112	69							0.594	
M287 SECURE STORAGE	Shutoff VAV	43	43	43	30	19	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
M289 STORAGE - SUPPLIES RO(	Shutoff VAV	46	46	46	31	20	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
M293 SMALL INTERVIEW ROOM	Shutoff VAV	61	61	61	27	18	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
M301 CORRIDOR	Shutoff VAV	61	61	61	18	11	0.622	1.00	0.00	1.00	1.00	1.00	0.622	
STOR RMS / SM INTERVIEW		210	210	210	106	68							0.594	
M299 CORRIDOR	Shutoff VAV	88	88	88	45	29	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
M300B CORRIDOR	Shutoff VAV	54	54	54	30	19	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
M291 CIC	Shutoff VAV	42	42	42	20	13	0.650	1.00	0.00	1.00	1.00	1.00	0.594	*
Primary - VAV w/ BB		4,053	3,901	4,053	1,585	953							0.594	
M273 EVIDENCE PROCESSING F	Shutoff VAV	85	85	85	30	20	0.650	1.00	0.00	1.00	1.00	1.00	0.593	*
M278 DUTY AGENT ROOM	Shutoff VAV	126	126	126	38	9	0.242	1.00	0.00	1.00	1.00	1.00	1.000	
EVID PROCG / DUTY AGENT		211	211	211	68	29							0.593	
M277 EVIDENCE CUSTODIAN RC	Shutoff VAV	64	64	64	24	16	0.650	1.00	0.00	1.00	1.00	1.00	0.593	*
M279 SMALL INTERVIEW ROOM	Shutoff VAV	105	105	105	31	19	0.607	1.00	0.00	1.00	1.00	1.00	0.637	
M280 SMALL INTERVIEW ROOM	Shutoff VAV	104	104	104	31	19	0.604	1.00	0.00	1.00	1.00	1.00	0.639	
M274 PHOTO ID ROOM	Shutoff VAV	45	45	45	19	12	0.650	1.00	0.00	1.00	1.00	1.00	0.593	*
SOUTHWEST INTERVIEW		318	318	318	106	66							0.593	
M283 POLYGRAPH OFFICE	Shutoff VAV	68	68	68	29	19	0.650	1.00	0.00	1.00	1.00	1.00	0.593	*
M284 POLYGRAPH EXAM ROOM	Shutoff VAV	63	63	63	29	19	0.650	1.00	0.00	1.00	1.00	1.00	0.593	*
M285 SUSPECT WAITING ROOM	Shutoff VAV	88	88	88	44	28	0.650	1.00	0.00	1.00	1.00	1.00	0.593	*
M286 SUSPECT TOILET ROOM	Shutoff VAV	20	20	20	6	3	0.578	1.00	0.00	1.00	1.00	1.00	0.666	
M294 OBSERVATION ROOM	Shutoff VAV	60	60	60	27	18	0.650	1.00	0.00	1.00	1.00	1.00	0.593	*
SUSPECT WAIT / POLYGRAPH		300	300	300	134	87							0.593	
M288 SMALL INTERVIEW ROOM	Shutoff VAV	71	71	71	30	20	0.650	1.00	0.00	1.00	1.00	1.00	0.593	*
M290 SMALL INTERVIEW ROOM	Shutoff VAV	72	72	72	31	20	0.650	1.00	0.00	1.00	1.00	1.00	0.593	*

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Ventilation Calculations for Cooling Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 2														
SML INTERVIEW RMS		142	142	142	61	40							0.593	
M300 CORRIDOR	Shutoff VAV	113	113	113	53	35	0.650	1.00	0.00	1.00	1.00	1.00	0.593	*
Secondary - VAV w/ BB		1,084	1,051	1,084	422	256							0.593	
Default		0	0	0	0	0							0.000	
DUMMY		0	0	0	0	0							0.000	
M266 VESTIBULE NORTH	Single Fan CV	15	15	15	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
NORTH VEST		15	15	15	0	0							1.000	
M275 VESTIBULE WEST	Single Fan CV	16	16	16	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
WEST VEST		16	16	16	0	0							1.000	
M300F SOUTH VEST	Single Fan CV	35	35	35	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
SOUTH VEST		35	35	35	0	0							1.000	
CUHs - Vestibules		66	66	66	0	0							1.000	
M270 ELECTRICAL ROOM	Single Fan CV	223	223	223	0	223	1.000	1.00	0.00	1.00	1.00	1.00	1.000	*
ELEC RM		223	223	223	0	223							1.000	
FCU - Elec		223	223	223	0	223							1.000	
M276 EVIDENCE DEPOSITORY F	Single Fan CV	128	128	128	0	49	0.384	1.00	0.00	1.00	1.00	1.00	0.000	
EVID DEPOSITORY		128	128	128	0	49							1.000	
FCU - Evid Dep		128	128	128	0	49							1.000	
M269 TR #1	Single Fan CV	81	81	81	0	9	0.110	1.00	0.00	1.00	1.00	1.00	0.000	
FCU - TR#1		81	81	81	0	9							1.000	
M292 TR #2	Single Fan CV	64	64	64	0	7	0.114	1.00	0.00	1.00	1.00	1.00	0.000	
FCU - TR#2		64	64	64	0	7							1.000	
M271 MECHANICAL ROOM	Single Fan CV	922	922	922	0	922	1.000	1.00	0.00	1.00	1.00	1.00	1.000	*
MECHANICAL ROOM		922	922	922	0	922							1.000	
FCU - Mech		922	922	922	0	922							1.000	

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Ventilation Calculations for Heating Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz
Alternative 2													
M247 ADMIN / OPS ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
ADMIN / OPS		0	0	0	0	0							0.000
M248 INVESTIGATIVE OPS TECH	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M249 INVESTIGATIVE OPS TECH	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M250 CRIMINAL INTEL ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M251 SAC	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
EAST OFFICES		0	0	0	0	0							0.000
M252 CRIMINAL INVESTIGATOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M256 SUPERVISOR TEAM ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M257 SR TEAM ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
NORTHEAST OFFICES		0	0	0	0	0							0.000
M253 CORRIDOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M299A CORRIDOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M253 / M299A CORRIDORS		0	0	0	0	0							0.000
M254 COMMAND CONFERENCE	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
COMMAND CONF		0	0	0	0	0							0.000
M255 VISITOR WAITING AREA	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M265 DRUG SUPPRESSION TEAI	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
DRUG SUPPRESSION TEAM/WAITIN		0	0	0	0	0							0.000
M258 SR TEAM ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M259 SPECIAL AGENT ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M260 SPECIAL AGENT ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M261 SPECIAL AGENT ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
NORTH OFFICES		0	0	0	0	0							0.000
M262 CORRIDOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M295 WOMEN	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M296 MEN	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M297 WOMEN SHOWERS	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M298 MEN SHOWERS	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M263 JANITOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
RESTROOMS		0	0	0	0	0							0.000
M264 MULTI-PURPOSE LOUNGE	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
MULTIPURPOSE LOUNGE		0	0	0	0	0							0.000

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Ventilation Calculations for Heating Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz
Alternative 2													
M267 SPECIAL AGENT ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M268 SPECIAL AGENT ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
NORTHWEST OFFICES		0	0	0	0	0							0.000
M272 TOE STORAGE	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
TOE STOR		0	0	0	0	0							0.000
M281 LARGE INTERVIEW ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M282 DST TEAM LEADER ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
SOUTH INTERVIEW		0	0	0	0	0							0.000
M287 SECURE STORAGE	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M289 STORAGE - SUPPLIES ROC	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M293 SMALL INTERVIEW ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M301 CORRIDOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
STOR RMS / SM INTERVIEW		0	0	0	0	0							0.000
M299 CORRIDOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M300B CORRIDOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M291 CIC	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
Primary - VAV w/ BB		0	0	0	0	0							0.000
M273 EVIDENCE PROCESSING F	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M278 DUTY AGENT ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
EVID PROCG / DUTY AGENT		0	0	0	0	0							0.000
M277 EVIDENCE CUSTODIAN RC	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M279 SMALL INTERVIEW ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M280 SMALL INTERVIEW ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M274 PHOTO ID ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
SOUTHWEST INTERVIEW		0	0	0	0	0							0.000
M283 POLYGRAPH OFFICE	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M284 POLYGRAPH EXAM ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M285 SUSPECT WAITING ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M286 SUSPECT TOILET ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M294 OBSERVATION ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
SUSPECT WAIT / POLYGRAPH		0	0	0	0	0							0.000
M288 SMALL INTERVIEW ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
M290 SMALL INTERVIEW ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000

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Ventilation Calculations for Heating Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 2														
SML INTERVIEW RMS		0	0	0	0	0							0.000	
M300 CORRIDOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000	
Secondary - VAV w/ BB		0	0	0	0	0							0.000	
Default		0	0	0	0	0							0.000	
DUMMY		0	0	0	0	0							0.000	
M266 VESTIBULE NORTH	Single Fan CV	15	15	15	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
NORTH VEST		15	15	15	0	0							1.000	
M275 VESTIBULE WEST	Single Fan CV	16	16	16	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
WEST VEST		16	16	16	0	0							1.000	
M300F SOUTH VEST	Single Fan CV	35	35	35	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
SOUTH VEST		35	35	35	0	0							1.000	
CUHs - Vestibules		66	66	66	0	0							1.000	
M270 ELECTRICAL ROOM	Single Fan CV	223	223	223	0	223	1.000	1.00	0.00	1.00	1.00	1.00	1.000	*
ELEC RM		223	223	223	0	223							1.000	
FCU - Elec		223	223	223	0	223							1.000	
M276 EVIDENCE DEPOSITORY R	Single Fan CV	128	128	128	0	49	0.384	1.00	0.00	1.00	1.00	1.00	0.000	
EVID DEPOSITORY		128	128	128	0	49							1.000	
FCU - Evid Dep		128	128	128	0	49							1.000	
M269 TR #1	Single Fan CV	81	81	81	0	9	0.110	1.00	0.00	1.00	1.00	1.00	0.000	
FCU - TR#1		81	81	81	0	9							1.000	
M292 TR #2	Single Fan CV	64	64	64	0	7	0.114	1.00	0.00	1.00	1.00	1.00	0.000	
FCU - TR#2		64	64	64	0	7							1.000	
M271 MECHANICAL ROOM	Single Fan CV	922	922	922	0	922	1.000	1.00	0.00	1.00	1.00	1.00	1.000	*
MECHANICAL ROOM		922	922	922	0	922							1.000	
FCU - Mech		922	922	922	0	922							1.000	

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System Ventilation Requirements

AHU Location	Description		∑Vpz cfm	Ps People	∑ Pz People	D Ps / ∑Pz	Vou cfm	Vps cfm	Xs	Ev	Vot cfm	%OA Vot / Vps
Alternative 3												
System	Primary - FPTU w/ Reheat	Cooling	4,133	79	79	1.00	953	3,977	0.239	0.639	1,490	37.5
		Heating	1,689	79	79	1.00	953	1,689	0.564	0.964	988	58.5
System	Secondary - FPTU w/ Reheat	Cooling	1,084	21	21	1.00	256	1,051	0.243	0.593	431	41.0
		Heating	422	21	21	1.00	256	422	0.606	0.956	268	63.4
Zone	DUMMY	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	CUHs - Vestibules	Cooling	66	0	0	1.00	0	66	0.000	1.000	0	0.0
		Heating	66	0	0	1.00	0	66	0.000	1.000	0	0.0
Zone	FCU - Elec	Cooling	223	0	0	1.00	223	223	1.000	1.000	223	100.0
		Heating	223	0	0	1.00	223	223	1.000	1.000	223	100.0
Room	FCU - Evid Dep	Cooling	128	0	0	1.00	49	128	0.384	1.000	49	38.4
		Heating	128	0	0	1.00	49	128	0.384	1.000	49	38.4
Room	FCU - TR#1	Cooling	81	1	1	1.00	9	81	0.110	1.000	9	11.0
		Heating	81	1	1	1.00	9	81	0.110	1.000	9	11.0
Room	FCU - TR#2	Cooling	64	1	1	1.00	7	64	0.114	1.000	7	11.4
		Heating	64	1	1	1.00	7	64	0.114	1.000	7	11.4
Zone	FCU - Mech	Cooling	922	1	1	1.00	922	922	1.000	1.000	922	100.0
		Heating	922	1	1	1.00	922	922	1.000	1.000	922	100.0

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Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	— Cooling — Ez	— Cooling — Voz cfm	— Heating — Ez	— Heating — Voz cfm
Alternative 3									
M247 ADMIN / OPS ROOM	5.00	3.00	0.06	680	56	1.00	56	1.00	56
ADMIN / OPS	5.00	3.00	0.06	680	56		56		56
M248 INVESTIGATIVE OPS TECH ROOM	5.00	1.00	0.06	120	12	1.00	12	1.00	12
M249 INVESTIGATIVE OPS TECH ROOM	5.00	1.00	0.06	122	12	1.00	12	1.00	12
M250 CRIMINAL INTEL ROOM	5.00	1.00	0.06	117	12	1.00	12	1.00	12
M251 SAC	5.00	1.00	0.06	203	17	1.00	17	1.00	17
EAST OFFICES	5.00	4.00	0.06	562	54		54		54
M252 CRIMINAL INVESTIGATOR ROOM	5.00	1.00	0.06	112	12	1.00	12	1.00	12
M256 SUPERVISOR TEAM ROOM	5.00	2.00	0.06	188	21	1.00	21	1.00	21
M257 SR TEAM ROOM	5.00	2.00	0.06	178	21	1.00	21	1.00	21
NORTHEAST OFFICES	5.00	5.00	0.06	478	54		54		54
M253 CORRIDOR	0.00	0.00	0.06	304	18	1.00	18	1.00	18
M299A CORRIDOR	0.00	0.00	0.06	380	23	1.00	23	1.00	23
M253 / M299A CORRIDORS	0.00	0.00	0.06	684	41		41		41
M254 COMMAND CONFERENCE ROOM	5.00	18.00	0.06	507	120	1.00	120	1.00	120
COMMAND CONF	5.00	18.00	0.06	507	120		120		120
M255 VISITOR WAITING AREA	5.00	4.00	0.06	309	39	1.00	39	1.00	39
M265 DRUG SUPPRESSION TEAM ROOM	5.00	5.00	0.06	628	63	1.00	63	1.00	63
DRUG SUPPRESSION TEAM/WAITING	5.00	9.00	0.06	937	101		101		101
M258 SR TEAM ROOM	5.00	2.00	0.06	188	21	1.00	21	1.00	21
M259 SPECIAL AGENT ROOM	5.00	2.00	0.06	178	21	1.00	21	1.00	21
M260 SPECIAL AGENT ROOM	5.00	2.00	0.06	188	21	1.00	21	1.00	21
M261 SPECIAL AGENT ROOM	5.00	2.00	0.06	181	21	1.00	21	1.00	21
NORTH OFFICES	5.00	8.00	0.06	735	84		84		84
M262 CORRIDOR	0.00	0.00	0.06	143	9	1.00	9	1.00	9
M295 WOMEN	0.00	0.00	0.00	203	0	1.00	0	1.00	0
M296 MEN	0.00	0.00	0.00	203	0	1.00	0	1.00	0
M297 WOMEN SHOWERS	0.00	0.00	0.00	72	0	1.00	0	1.00	0
M298 MEN SHOWERS	0.00	0.00	0.00	72	0	1.00	0	1.00	0
M263 JANITOR	0.00	0.00	0.00	36	0	1.00	0	1.00	0
RESTROOMS	0.00	0.00	0.01	728	9		9		9

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Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	— Cooling — Ez	— Cooling — Voz cfm	— Heating — Ez	— Heating — Voz cfm
Alternative 3									
M264 MULTI-PURPOSE LOUNGE	5.00	16.00	0.06	649	119	1.00	119	1.00	119
MULTIPURPOSE LOUNGE	5.00	16.00	0.06	649	119		119		119
M267 SPECIAL AGENT ROOM	5.00	2.00	0.06	188	21	1.00	21	1.00	21
M268 SPECIAL AGENT ROOM	5.00	2.00	0.06	185	21	1.00	21	1.00	21
NORTHWEST OFFICES	5.00	4.00	0.06	374	42		42		42
M272 TOE STORAGE	0.00	0.00	0.12	608	73	1.00	73	1.00	73
TOE STOR	0.00	0.00	0.12	608	73		73		73
M281 LARGE INTERVIEW ROOM	5.00	8.00	0.06	253	55	1.00	55	1.00	55
M282 DST TEAM LEADER ROOM	5.00	1.00	0.06	156	14	1.00	14	1.00	14
SOUTH INTERVIEW	5.00	9.00	0.06	408	69		69		69
M287 SECURE STORAGE	0.00	0.00	0.12	161	19	1.00	19	1.00	19
M289 STORAGE - SUPPLIES ROOM	0.00	0.00	0.12	167	20	1.00	20	1.00	20
M293 SMALL INTERVIEW ROOM #5	5.00	2.00	0.06	129	18	1.00	18	1.00	18
M301 CORRIDOR	0.00	0.00	0.06	190	11	1.00	11	1.00	11
STOR RMS / SM INTERVIEW	5.00	2.00	0.09	647	68		68		68
M299 CORRIDOR	0.00	0.00	0.06	491	29	1.00	29	1.00	29
M300B CORRIDOR	0.00	0.00	0.06	325	19	1.00	19	1.00	19
M291 CIC	5.00	1.00	0.06	129	13	1.00	13	1.00	13
Primary - FPTU w/ Reheat	5.00	79.00	0.06	8,942	953		953		953
M273 EVIDENCE PROCESSING ROOM	5.00	1.00	0.06	245	20	1.00	20	1.00	20
M278 DUTY AGENT ROOM	5.00	0.00	0.06	153	9	1.00	9	1.00	9
EVID PROCG / DUTY AGENT	5.00	1.00	0.06	398	29		29		29
M277 EVIDENCE CUSTODIAN ROOM	5.00	1.00	0.06	180	16	1.00	16	1.00	16
M279 SMALL INTERVIEW ROOM #1	5.00	2.00	0.06	151	19	1.00	19	1.00	19
M280 SMALL INTERVIEW ROOM #2	5.00	2.00	0.06	148	19	1.00	19	1.00	19
M274 PHOTO ID ROOM	5.00	1.00	0.06	121	12	1.00	12	1.00	12
SOUTHWEST INTERVIEW	5.00	6.00	0.06	600	66		66		66
M283 POLYGRAPH OFFICE	5.00	2.00	0.06	146	19	1.00	19	1.00	19
M284 POLYGRAPH EXAM ROOM	5.00	2.00	0.06	143	19	1.00	19	1.00	19
M285 SUSPECT WAITING ROOM	5.00	4.00	0.06	139	28	1.00	28	1.00	28
M286 SUSPECT TOILET ROOM	5.00	0.00	0.06	57	3	1.00	3	1.00	3

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Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	— Cooling — Ez	— Cooling — Voz cfm	— Heating — Ez	— Heating — Voz cfm
Alternative 3									
M294 OBSERVATION ROOM	5.00	2.00	0.06	125	18	1.00	18	1.00	18
SUSPECT WAIT / POLYGRAPH	5.00	10.00	0.06	611	87		87		87
M288 SMALL INTERVIEW ROOM #3	5.00	2.00	0.06	161	20	1.00	20	1.00	20
M290 SMALL INTERVIEW ROOM #4	5.00	2.00	0.06	167	20	1.00	20	1.00	20
SML INTERVIEW RMS	5.00	4.00	0.06	328	40		40		40
M300 CORRIDOR	0.00	0.00	0.06	578	35	1.00	35	1.00	35
Secondary - FPTU w/ Reheat	5.00	21.00	0.06	2,514	256		256		256
Default	0.00	0.00	0.00	0	0		0		0
DUMMY	0.00	0.00	0.00	0	0		0		0
M266 VESTIBULE NORTH	0.00	0.00	0.00	62	0	1.00	0	1.00	0
NORTH VEST	0.00	0.00	0.00	62	0		0		0
M275 VESTIBULE WEST	0.00	0.00	0.00	62	0	1.00	0	1.00	0
WEST VEST	0.00	0.00	0.00	62	0		0		0
M300F SOUTH VEST	0.00	0.00	0.00	141	0	1.00	0	1.00	0
SOUTH VEST	0.00	0.00	0.00	141	0		0		0
CUHs - Vestibules	0.00	0.00	0.00	264	0		0		0
M270 ELECTRICAL ROOM	0.00	0.00	10.00	148	223	1.00	223	1.00	223
ELEC RM	0.00	0.00	1.50	148	223		223		223
FCU - Elec	0.00	0.00	1.50	148	223		223		223
M276 EVIDENCE DEPOSITORY ROOM	0.00	0.00	0.12	410	49	1.00	49	1.00	49
EVID DEPOSITORY	0.00	0.00	0.12	410	49		49		49
FCU - Evid Dep	0.00	0.00	0.12	410	49		49		49
M269 TR #1	0.00	1.00	0.06	149	9	1.00	9	1.00	9
FCU - TR#1	0.00	1.00	0.06	149	9		9		9
M292 TR #2	0.00	1.00	0.06	122	7	1.00	7	1.00	7
FCU - TR#2	0.00	1.00	0.06	122	7		7		7
M271 MECHANICAL ROOM	0.00	1.00	6.00	659	922	1.00	922	1.00	922
MECHANICAL ROOM	0.00	1.00	1.40	659	922		922		922
FCU - Mech	0.00	1.00	1.40	659	922		922		922

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Ventilation Calculations for Cooling Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz
Alternative 3													
M247 ADMIN / OPS ROOM	PFP Reheat	315	315	315	94	56	0.591	1.00	0.30	1.00	1.00	1.00	0.648
ADMIN / OPS		315	315	315	94	56							0.648
M248 INVESTIGATIVE OPS TECH	PFP Reheat	90	90	90	27	12	0.455	1.00	0.30	1.00	1.00	1.00	0.784
M249 INVESTIGATIVE OPS TECH	PFP Reheat	90	90	90	27	12	0.458	1.00	0.30	1.00	1.00	1.00	0.781
M250 CRIMINAL INTEL ROOM	PFP Reheat	89	89	89	27	12	0.453	1.00	0.30	1.00	1.00	1.00	0.787
M251 SAC	PFP Reheat	171	171	171	51	17	0.335	1.00	0.30	1.00	1.00	1.00	0.905
EAST OFFICES		438	438	438	132	54							0.781
M252 CRIMINAL INVESTIGATOR	PFP Reheat	70	70	70	21	12	0.555	1.00	0.30	1.00	1.00	1.00	0.685
M256 SUPERVISOR TEAM ROOM	PFP Reheat	106	106	106	35	21	0.600	1.00	0.30	1.00	1.00	1.00	0.639
M257 SR TEAM ROOM	PFP Reheat	104	104	104	34	21	0.600	1.00	0.30	1.00	1.00	1.00	0.639
NORTHEAST OFFICES		280	280	280	91	54							0.639
M253 CORRIDOR	PFP Reheat	63	63	63	30	18	0.600	1.00	0.30	1.00	1.00	1.00	0.639
M299A CORRIDOR	PFP Reheat	64	64	64	38	23	0.600	1.00	0.30	1.00	1.00	1.00	0.639
M253 / M299A CORRIDORS		127	127	127	68	41							0.639
M254 COMMAND CONFERENCE	PFP Reheat	364	364	364	201	120	0.600	1.00	0.30	1.00	1.00	1.00	0.639
COMMAND CONF		364	364	364	201	120							0.639
M255 VISITOR WAITING AREA	PFP Reheat	114	114	114	64	39	0.600	1.00	0.30	1.00	1.00	1.00	0.639
M265 DRUG SUPPRESSION TEA	PFP Reheat	379	379	379	114	63	0.552	1.00	0.30	1.00	1.00	1.00	0.688
DRUG SUPPRESSION TEAM/WAITI		493	493	493	178	101							0.639
M258 SR TEAM ROOM	PFP Reheat	106	106	106	35	21	0.600	1.00	0.30	1.00	1.00	1.00	0.639
M259 SPECIAL AGENT ROOM	PFP Reheat	104	104	104	34	21	0.600	1.00	0.30	1.00	1.00	1.00	0.639
M260 SPECIAL AGENT ROOM	PFP Reheat	106	106	106	35	21	0.600	1.00	0.30	1.00	1.00	1.00	0.639
M261 SPECIAL AGENT ROOM	PFP Reheat	106	106	106	35	21	0.600	1.00	0.30	1.00	1.00	1.00	0.639
NORTH OFFICES		421	421	421	140	84							0.639
M262 CORRIDOR	PFP Reheat	64	64	64	19	9	0.450	1.00	0.30	1.00	1.00	1.00	0.790
M295 WOMEN	PFP Reheat	51	51	51	15	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000
M296 MEN	PFP Reheat	47	47	47	14	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000
M297 WOMEN SHOWERS	PFP Reheat	7	7	7	2	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000
M298 MEN SHOWERS	PFP Reheat	13	13	13	4	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000
M263 JANITOR	PFP Reheat	9	9	9	3	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000
RESTROOMS		191	191	191	57	9							0.790
M264 MULTI-PURPOSE LOUNGE	PFP Reheat	369	369	369	198	119	0.600	1.00	0.30	1.00	1.00	1.00	0.639
MULTIPURPOSE LOUNGE		369	369	369	198	119							0.639

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System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 3														
M267 SPECIAL AGENT ROOM	PFP Reheat	108	108	108	36	21	0.600	1.00	0.30	1.00	1.00	1.00	0.639	
M268 SPECIAL AGENT ROOM	PFP Reheat	105	105	105	35	21	0.600	1.00	0.30	1.00	1.00	1.00	0.639	
NORTHWEST OFFICES		213	213	213	71	42							0.639	
M272 TOE STORAGE	PFP Reheat	218	218	218	122	73	0.600	1.00	0.30	1.00	1.00	1.00	0.639	
TOE STOR		218	218	218	122	73							0.639	
M281 LARGE INTERVIEW ROOM	PFP Reheat	209	209	209	92	55	0.600	1.00	0.30	1.00	1.00	1.00	0.639	
M282 DST TEAM LEADER ROOM	PFP Reheat	93	93	93	28	14	0.514	1.00	0.30	1.00	1.00	1.00	0.726	
SOUTH INTERVIEW		302	302	302	120	69							0.639	
M287 SECURE STORAGE	PFP Reheat	44	44	44	32	19	0.600	1.00	0.30	1.00	1.00	1.00	0.639	*
M289 STORAGE - SUPPLIES RO(	PFP Reheat	46	46	46	33	20	0.600	1.00	0.30	1.00	1.00	1.00	0.639	
M293 SMALL INTERVIEW ROOM	PFP Reheat	62	62	62	30	18	0.600	1.00	0.30	1.00	1.00	1.00	0.639	
M301 CORRIDOR	PFP Reheat	62	62	62	19	11	0.600	1.00	0.30	1.00	1.00	1.00	0.639	
STOR RMS / SM INTERVIEW		214	214	214	114	68							0.639	
M299 CORRIDOR	PFP Reheat	90	90	90	49	29	0.600	1.00	0.30	1.00	1.00	1.00	0.639	
M300B CORRIDOR	PFP Reheat	55	55	55	32	19	0.600	1.00	0.30	1.00	1.00	1.00	0.639	
M291 CIC	PFP Reheat	43	43	43	21	13	0.600	1.00	0.30	1.00	1.00	1.00	0.639	
Primary - FPTU w/ Reheat		4,133	3,977	4,133	1,689	953							0.639	
M273 EVIDENCE PROCESSING F	PFP Reheat	85	85	85	30	20	0.650	1.00	0.30	1.00	1.00	1.00	0.593	*
M278 DUTY AGENT ROOM	PFP Reheat	126	126	126	38	9	0.242	1.00	0.30	1.00	1.00	1.00	1.000	
EVID PROCG / DUTY AGENT		211	211	211	68	29							0.593	
M277 EVIDENCE CUSTODIAN RC	PFP Reheat	64	64	64	24	16	0.650	1.00	0.30	1.00	1.00	1.00	0.593	*
M279 SMALL INTERVIEW ROOM	PFP Reheat	105	105	105	31	19	0.607	1.00	0.30	1.00	1.00	1.00	0.637	
M280 SMALL INTERVIEW ROOM	PFP Reheat	104	104	104	31	19	0.604	1.00	0.30	1.00	1.00	1.00	0.639	
M274 PHOTO ID ROOM	PFP Reheat	45	45	45	19	12	0.650	1.00	0.30	1.00	1.00	1.00	0.593	*
SOUTHWEST INTERVIEW		318	318	318	106	66							0.593	
M283 POLYGRAPH OFFICE	PFP Reheat	68	68	68	29	19	0.650	1.00	0.30	1.00	1.00	1.00	0.593	*
M284 POLYGRAPH EXAM ROOM	PFP Reheat	63	63	63	29	19	0.650	1.00	0.30	1.00	1.00	1.00	0.593	*
M285 SUSPECT WAITING ROOM	PFP Reheat	88	88	88	44	28	0.650	1.00	0.30	1.00	1.00	1.00	0.593	*
M286 SUSPECT TOILET ROOM	PFP Reheat	20	20	20	6	3	0.578	1.00	0.30	1.00	1.00	1.00	0.666	
M294 OBSERVATION ROOM	PFP Reheat	60	60	60	27	18	0.650	1.00	0.30	1.00	1.00	1.00	0.593	*
SUSPECT WAIT / POLYGRAPH		300	300	300	134	87							0.593	
M288 SMALL INTERVIEW ROOM	PFP Reheat	71	71	71	30	20	0.650	1.00	0.30	1.00	1.00	1.00	0.593	*
M290 SMALL INTERVIEW ROOM	PFP Reheat	72	72	72	31	20	0.650	1.00	0.30	1.00	1.00	1.00	0.593	*

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Ventilation Calculations for Cooling Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 3														
SML INTERVIEW RMS		142	142	142	61	40							0.593	
M300 CORRIDOR	PFP Reheat	113	113	113	53	35	0.650	1.00	0.30	1.00	1.00	1.00	0.593	*
Secondary - FPTU w/ Reheat		1,084	1,051	1,084	422	256							0.593	
Default		0	0	0	0	0							0.000	
DUMMY		0	0	0	0	0							0.000	
M266 VESTIBULE NORTH	Single Fan CV	15	15	15	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
NORTH VEST		15	15	15	0	0							1.000	
M275 VESTIBULE WEST	Single Fan CV	16	16	16	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
WEST VEST		16	16	16	0	0							1.000	
M300F SOUTH VEST	Single Fan CV	35	35	35	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
SOUTH VEST		35	35	35	0	0							1.000	
CUHs - Vestibules		66	66	66	0	0							1.000	
M270 ELECTRICAL ROOM	Single Fan CV	223	223	223	0	223	1.000	1.00	0.00	1.00	1.00	1.00	1.000	*
ELEC RM		223	223	223	0	223							1.000	
FCU - Elec		223	223	223	0	223							1.000	
M276 EVIDENCE DEPOSITORY F	Single Fan CV	128	128	128	0	49	0.384	1.00	0.00	1.00	1.00	1.00	0.000	
EVID DEPOSITORY		128	128	128	0	49							1.000	
FCU - Evid Dep		128	128	128	0	49							1.000	
M269 TR #1	Single Fan CV	81	81	81	0	9	0.110	1.00	0.00	1.00	1.00	1.00	0.000	
FCU - TR#1		81	81	81	0	9							1.000	
M292 TR #2	Single Fan CV	64	64	64	0	7	0.114	1.00	0.00	1.00	1.00	1.00	0.000	
FCU - TR#2		64	64	64	0	7							1.000	
M271 MECHANICAL ROOM	Single Fan CV	922	922	922	0	922	1.000	1.00	0.00	1.00	1.00	1.00	1.000	*
MECHANICAL ROOM		922	922	922	0	922							1.000	
FCU - Mech		922	922	922	0	922							1.000	

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System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz
Alternative 3													
M247 ADMIN / OPS ROOM	PFP Reheat	94	94	109	94	56	0.591	1.00	0.30	1.00	1.00	1.00	0.973
ADMIN / OPS		94	94	109	94	56							0.973
M248 INVESTIGATIVE OPS TECH	PFP Reheat	27	27	27	27	12	0.455	1.00	0.30	1.00	1.00	1.00	1.000
M249 INVESTIGATIVE OPS TECH	PFP Reheat	27	27	27	27	12	0.458	1.00	0.30	1.00	1.00	1.00	1.000
M250 CRIMINAL INTEL ROOM	PFP Reheat	27	27	27	27	12	0.453	1.00	0.30	1.00	1.00	1.00	1.000
M251 SAC	PFP Reheat	51	51	71	51	17	0.335	1.00	0.30	1.00	1.00	1.00	1.000
EAST OFFICES		132	132	153	132	54							1.000
M252 CRIMINAL INVESTIGATOR	PFP Reheat	21	21	26	21	12	0.555	1.00	0.30	1.00	1.00	1.00	1.000
M256 SUPERVISOR TEAM ROOM	PFP Reheat	35	35	35	35	21	0.600	1.00	0.30	1.00	1.00	1.00	0.964
M257 SR TEAM ROOM	PFP Reheat	34	34	34	34	21	0.600	1.00	0.30	1.00	1.00	1.00	0.964
NORTHEAST OFFICES		91	91	96	91	54							0.964
M253 CORRIDOR	PFP Reheat	30	30	30	30	18	0.600	1.00	0.30	1.00	1.00	1.00	0.964
M299A CORRIDOR	PFP Reheat	38	38	38	38	23	0.600	1.00	0.30	1.00	1.00	1.00	0.964
M253 / M299A CORRIDORS		68	68	68	68	41							0.964
M254 COMMAND CONFERENCE	PFP Reheat	201	201	201	201	120	0.600	1.00	0.30	1.00	1.00	1.00	0.964
COMMAND CONF		201	201	201	201	120							0.964
M255 VISITOR WAITING AREA	PFP Reheat	64	64	64	64	39	0.600	1.00	0.30	1.00	1.00	1.00	0.964
M265 DRUG SUPPRESSION TEAI	PFP Reheat	114	114	114	114	63	0.552	1.00	0.30	1.00	1.00	1.00	1.000
DRUG SUPPRESSION TEAM/WAITIN		178	178	178	178	101							0.964
M258 SR TEAM ROOM	PFP Reheat	35	35	35	35	21	0.600	1.00	0.30	1.00	1.00	1.00	0.964
M259 SPECIAL AGENT ROOM	PFP Reheat	34	34	34	34	21	0.600	1.00	0.30	1.00	1.00	1.00	0.964
M260 SPECIAL AGENT ROOM	PFP Reheat	35	35	35	35	21	0.600	1.00	0.30	1.00	1.00	1.00	0.964
M261 SPECIAL AGENT ROOM	PFP Reheat	35	35	35	35	21	0.600	1.00	0.30	1.00	1.00	1.00	0.964
NORTH OFFICES		140	140	140	140	84							0.964
M262 CORRIDOR	PFP Reheat	19	19	19	19	9	0.450	1.00	0.30	1.00	1.00	1.00	1.000
M295 WOMEN	PFP Reheat	15	15	15	15	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000
M296 MEN	PFP Reheat	14	14	14	14	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000
M297 WOMEN SHOWERS	PFP Reheat	2	2	2	2	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000
M298 MEN SHOWERS	PFP Reheat	4	4	4	4	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000
M263 JANITOR	PFP Reheat	3	3	3	3	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000
RESTROOMS		57	57	57	57	9							1.000
M264 MULTI-PURPOSE LOUNGE	PFP Reheat	198	198	198	198	119	0.600	1.00	0.30	1.00	1.00	1.00	0.964
MULTIPURPOSE LOUNGE		198	198	198	198	119							0.964

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System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 3														
M267 SPECIAL AGENT ROOM	PFP Reheat	36	36	36	36	21	0.600	1.00	0.30	1.00	1.00	1.00	0.964	
M268 SPECIAL AGENT ROOM	PFP Reheat	35	35	35	35	21	0.600	1.00	0.30	1.00	1.00	1.00	0.964	
NORTHWEST OFFICES		71	71	71	71	42							0.964	
M272 TOE STORAGE	PFP Reheat	122	122	122	122	73	0.600	1.00	0.30	1.00	1.00	1.00	0.964	
TOE STOR		122	122	122	122	73							0.964	
M281 LARGE INTERVIEW ROOM	PFP Reheat	92	92	92	92	55	0.600	1.00	0.30	1.00	1.00	1.00	0.964	
M282 DST TEAM LEADER ROOM	PFP Reheat	28	28	28	28	14	0.514	1.00	0.30	1.00	1.00	1.00	1.000	
SOUTH INTERVIEW		120	120	120	120	69							0.964	
M287 SECURE STORAGE	PFP Reheat	32	32	32	32	19	0.600	1.00	0.30	1.00	1.00	1.00	0.964	*
M289 STORAGE - SUPPLIES ROO	PFP Reheat	33	33	33	33	20	0.600	1.00	0.30	1.00	1.00	1.00	0.964	
M293 SMALL INTERVIEW ROOM	PFP Reheat	30	30	30	30	18	0.600	1.00	0.30	1.00	1.00	1.00	0.964	
M301 CORRIDOR	PFP Reheat	19	19	19	19	11	0.600	1.00	0.30	1.00	1.00	1.00	0.964	
STOR RMS / SM INTERVIEW		114	114	114	114	68							0.964	
M299 CORRIDOR	PFP Reheat	49	49	49	49	29	0.600	1.00	0.30	1.00	1.00	1.00	0.964	
M300B CORRIDOR	PFP Reheat	32	32	32	32	19	0.600	1.00	0.30	1.00	1.00	1.00	0.964	
M291 CIC	PFP Reheat	21	21	21	21	13	0.600	1.00	0.30	1.00	1.00	1.00	0.964	
Primary - FPTU w/ Reheat		1,689	1,689	1,730	1,689	953							0.964	
M273 EVIDENCE PROCESSING R	PFP Reheat	30	30	30	30	20	0.650	1.00	0.30	1.00	1.00	1.00	0.956	*
M278 DUTY AGENT ROOM	PFP Reheat	38	38	50	38	9	0.242	1.00	0.30	1.00	1.00	1.00	1.000	
EVID PROCG / DUTY AGENT		68	68	81	68	29							0.956	
M277 EVIDENCE CUSTODIAN RO	PFP Reheat	24	24	24	24	16	0.650	1.00	0.30	1.00	1.00	1.00	0.956	*
M279 SMALL INTERVIEW ROOM	PFP Reheat	31	31	31	31	19	0.607	1.00	0.30	1.00	1.00	1.00	0.999	
M280 SMALL INTERVIEW ROOM	PFP Reheat	31	31	31	31	19	0.604	1.00	0.30	1.00	1.00	1.00	1.000	
M274 PHOTO ID ROOM	PFP Reheat	19	19	19	19	12	0.650	1.00	0.30	1.00	1.00	1.00	0.956	*
SOUTHWEST INTERVIEW		106	106	106	106	66							0.956	
M283 POLYGRAPH OFFICE	PFP Reheat	29	29	29	29	19	0.650	1.00	0.30	1.00	1.00	1.00	0.956	*
M284 POLYGRAPH EXAM ROOM	PFP Reheat	29	29	29	29	19	0.650	1.00	0.30	1.00	1.00	1.00	0.956	*
M285 SUSPECT WAITING ROOM	PFP Reheat	44	44	44	44	28	0.650	1.00	0.30	1.00	1.00	1.00	0.956	*
M286 SUSPECT TOILET ROOM	PFP Reheat	6	6	8	6	3	0.577	1.00	0.30	1.00	1.00	1.00	1.000	
M294 OBSERVATION ROOM	PFP Reheat	27	27	27	27	18	0.650	1.00	0.30	1.00	1.00	1.00	0.956	*
SUSPECT WAIT / POLYGRAPH		134	134	136	134	87							0.956	
M288 SMALL INTERVIEW ROOM	PFP Reheat	30	30	30	30	20	0.650	1.00	0.30	1.00	1.00	1.00	0.956	*
M290 SMALL INTERVIEW ROOM	PFP Reheat	31	31	31	31	20	0.650	1.00	0.30	1.00	1.00	1.00	0.956	*

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System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 3														
SML INTERVIEW RMS		61	61	61	61	40							0.956	
M300 CORRIDOR	PFP Reheat	53	53	53	53	35	0.650	1.00	0.30	1.00	1.00	1.00	0.956	*
Secondary - FPTU w/ Reheat		422	422	437	422	256							0.956	
Default		0	0	0	0	0							0.000	
DUMMY		0	0	0	0	0							0.000	
M266 VESTIBULE NORTH	Single Fan CV	15	15	15	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
NORTH VEST		15	15	15	0	0							1.000	
M275 VESTIBULE WEST	Single Fan CV	16	16	16	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
WEST VEST		16	16	16	0	0							1.000	
M300F SOUTH VEST	Single Fan CV	35	35	35	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
SOUTH VEST		35	35	35	0	0							1.000	
CUHs - Vestibules		66	66	66	0	0							1.000	
M270 ELECTRICAL ROOM	Single Fan CV	223	223	223	0	223	1.000	1.00	0.00	1.00	1.00	1.00	1.000	*
ELEC RM		223	223	223	0	223							1.000	
FCU - Elec		223	223	223	0	223							1.000	
M276 EVIDENCE DEPOSITORY R	Single Fan CV	128	128	128	0	49	0.384	1.00	0.00	1.00	1.00	1.00	0.000	
EVID DEPOSITORY		128	128	128	0	49							1.000	
FCU - Evid Dep		128	128	128	0	49							1.000	
M269 TR #1	Single Fan CV	81	81	81	0	9	0.110	1.00	0.00	1.00	1.00	1.00	0.000	
FCU - TR#1		81	81	81	0	9							1.000	
M292 TR #2	Single Fan CV	64	64	64	0	7	0.114	1.00	0.00	1.00	1.00	1.00	0.000	
FCU - TR#2		64	64	64	0	7							1.000	
M271 MECHANICAL ROOM	Single Fan CV	922	922	922	0	922	1.000	1.00	0.00	1.00	1.00	1.00	1.000	*
MECHANICAL ROOM		922	922	922	0	922							1.000	
FCU - Mech		922	922	922	0	922							1.000	

MONTHLY ENERGY CONSUMPTION

By PB

------- Monthly Energy Consumption -------

Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Alternative: 1	**ASHRAE 90_1-2007 Baseline**												
Electric													
On-Pk Cons. (kWh)	15,473	14,511	16,888	18,611	20,626	22,399	23,278	22,539	20,380	18,601	15,631	15,861	224,798
On-Pk Demand (kW)	39	41	45	54	59	60	61	61	58	55	43	39	61
Gas													
On-Pk Cons. (therms)	52	19	6	0	0	0	0	0	0	0	15	64	156
On-Pk Demand (therms/hr)	3	1	1	0	0	0	0	0	0	0	1	2	3

Energy Consumption

Building	59,222	Btu/(ft2-year)
Source	175,383	Btu/(ft2-year)
Floor Area	13,219	ft2

Environmental Impact Analysis

CO2	No Data Available
SO2	No Data Available
NOX	No Data Available

MONTHLY ENERGY CONSUMPTION

By PB

------- Monthly Energy Consumption -------

Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Alternative: 2	**Self Contained VAV Units w/ Clg Tower**												
Electric													
On-Pk Cons. (kWh)	36,376	25,453	24,543	16,845	13,606	36,659	18,659	17,623	15,277	19,642	28,710	37,572	290,964
On-Pk Demand (kW)	72	72	71	74	135	176	140	145	75	76	72	71	176
Gas													
On-Pk Cons. (therms)	151	90	59	21	0	158	0	16	22	48	106	183	854
On-Pk Demand (therms/hr)	2	1	1	1	0	1	0	1	1	1	1	2	2
Water													
Cons. (1000gal)	2	3	4	7	9	12	14	12	10	7	3	2	84

Energy Consumption

Building	81,584	Btu/(ft2-year)
Source	232,195	Btu/(ft2-year)
Floor Area	13,219	ft2

Environmental Impact Analysis

CO2	No Data Available
SO2	No Data Available
NOX	No Data Available

MONTHLY ENERGY CONSUMPTION

By PB

------- Monthly Energy Consumption -------

Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Alternative: 3	**VAV Fan Coil Units w/ Air Cooled Chiller**												
Electric													
On-Pk Cons. (kWh)	17,428	13,956	14,907	15,207	16,210	39,683	22,659	21,093	18,141	17,813	16,171	18,391	231,658
On-Pk Demand (kW)	73	74	74	82	139	181	146	149	85	85	75	73	181
Gas													
On-Pk Cons. (therms)	93	54	30	15	0	158	0	16	22	39	66	113	605
On-Pk Demand (therms/hr)	2	1	1	1	0	1	0	1	1	1	1	2	2

Energy Consumption

Building	64,391	Btu/(ft2-year)
Source	184,273	Btu/(ft2-year)
Floor Area	13,219	ft2

Environmental Impact Analysis

CO2	No Data Available
SO2	No Data Available
NOX	No Data Available

ENERGY CONSUMPTION SUMMARY

By PB

	Elect Cons. (kWh)	Gas Cons. (kBtu)	% of Total Building Energy	Total Building Energy (kBtu/yr)	Total Source Energy* (kBtu/yr)
Alternative 1					
Primary heating					
Primary heating		17,499	2.3 %	17,499	18,420
Other Htg Accessories			0.0 %	0	0
Heating Subtotal		**17,499**	**2.3** %	**17,499**	**18,420**
Primary cooling					
Cooling Compressor	33,324		14.6 %	113,734	341,235
Tower/Cond Fans	2,567		1.1 %	8,761	26,286
Condenser Pump			0.0 %	0	0
Other Clg Accessories	328		0.1 %	1,121	3,363
Cooling Subtotal....	**36,219**		**15.9** %	**123,615**	**370,883**
Auxiliary					
Supply Fans	40,799		17.9 %	139,245	417,778
Pumps			0.0 %	0	0
Stand-alone Base Utilities	36,964		16.2 %	126,157	378,509
Aux Subtotal....	77,762		34.1 %	265,402	796,287
Lighting					
Lighting	61,821		27.1 %	210,995	633,049
Receptacle					
Receptacles	47,323		20.7 %	161,515	484,592
Cogeneration					
Cogeneration			0.0 %	0	0
Totals					
Totals**	**223,126**	**17,499**	**100.0** %	**779,027**	**2,303,231**

* Note: Resource Utilization factors are included in the Total Source Energy value.

** Note: This report can display a maximum of 7 utilities. If additional utilities are used, they will be included in the total.

ENERGY CONSUMPTION SUMMARY

By PB

	Elect Cons. (kWh)	Gas Cons. (kBtu)	Water Cons. (1000 gals)	% of Total Building Energy	Total Building Energy (kBtu/yr)	Total Source Energy* (kBtu/yr)
Alternative 2						
Primary heating						
Primary heating		85,394		7.9 %	85,394	89,888
Other Htg Accessories	126,996			40.2 %	433,436	1,300,439
Heating Subtotal	**126,996**	**85,394**		**48.1** %	**518,830**	**1,390,328**
Primary cooling						
Cooling Compressor	17,891			5.7 %	61,061	183,201
Tower/Cond Fans	18,632		84	5.9 %	63,592	190,795
Condenser Pump				0.0 %	0	0
Other Clg Accessories	5,699			1.8 %	19,450	58,355
Cooling Subtotal....	**42,222**		**84**	**13.4** %	**144,103**	**432,351**
Auxiliary						
Supply Fans	8,022			2.5 %	27,377	82,140
Pumps				0.0 %	0	0
Stand-alone Base Utilities	36,964			11.7 %	126,157	378,509
Aux Subtotal....	44,985			14.2 %	153,534	460,649
Lighting						
Lighting	33,031			10.5 %	112,736	338,242
Receptacle						
Receptacles	43,731			13.8 %	149,253	447,805
Cogeneration						
Cogeneration				0.0 %	0	0
Totals						
Totals**	**290,965**	**85,394**	**84**	**100.0** %	**1,078,457**	**3,069,375**

* Note: Resource Utilization factors are included in the Total Source Energy value.

** Note: This report can display a maximum of 7 utilities. If additional utilities are used, they will be included in the total.

ENERGY CONSUMPTION SUMMARY

By PB

	Elect Cons. (kWh)	Gas Cons. (kBtu)	% of Total Building Energy	Total Building Energy (kBtu/yr)	Total Source Energy* (kBtu/yr)
Alternative 3					
Primary heating					
Primary heating		60,526	7.1 %	60,526	63,711
Other Htg Accessories	49,151		19.7 %	167,754	503,311
Heating Subtotal	**49,151**	**60,526**	**26.8 %**	**228,279**	**567,023**
Primary cooling					
Cooling Compressor	31,852		12.8 %	108,712	326,169
Tower/Cond Fans	15,903		6.4 %	54,276	162,844
Condenser Pump			0.0 %	0	0
Other Clg Accessories	2,208		0.9 %	7,534	22,605
Cooling Subtotal....	**49,963**		**20.0 %**	**170,522**	**511,618**
Auxiliary					
Supply Fans	7,639		3.1 %	26,071	78,221
Pumps	11,180		4.5 %	38,156	114,479
Stand-alone Base Utilities	36,964		14.8 %	126,157	378,509
Aux Subtotal....	55,782		22.4 %	190,384	571,209
Lighting					
Lighting	33,031		13.2 %	112,736	338,242
Receptacle					
Receptacles	43,731		17.5 %	149,253	447,805
Cogeneration					
Cogeneration			0.0 %	0	0
Totals					
Totals**	**231,658**	**60,526**	**100.0 %**	**851,175**	**2,435,897**

* Note: Resource Utilization factors are included in the Total Source Energy value.

** Note: This report can display a maximum of 7 utilities. If additional utilities are used, they will be included in the total.

Location	
Building owner	
Program user	
Company	
Comments	

By	**PBHA**
Dataset name	**C:\USERS\AGEBREHANA\FT-BLISS.TRC**

Calculation time	**03:52 PM on 06/05/2012**	
TRACE® 700 version	**6.2.8**	
Location	**El Paso Intl AP**	
Latitude	**31.8**	**deg**
Longitude	**106.5**	**deg**
Time Zone	**7**	
Elevation	**3,608**	**ft**
Barometric pressure	**26.2**	**in. Hg**
Air density	**0.0664**	**lb/cu ft**
Air specific heat	**0.2444**	**Btu/lb·°F**
Density-specific heat product	**0.9746**	**Btu/h·cfm·°F**
Latent heat factor	**4,289.9**	**Btu·min/h·cu ft**
Enthalpy factor	**3.9869**	**lb·min/hr·cu ft**
Summer design dry bulb	**99**	**°F**
Summer design wet bulb	**71**	**°F**
Winter design dry bulb	**23**	**°F**
Summer clearness number	**1.00**	
Winter clearness number	**1.00**	
Summer ground reflectance	**0.20**	
Winter ground reflectance	**0.20**	
Carbon Dioxide Level	**400**	**ppm**
Design simulation period	**January - December**	
Cooling load methodology	**TETD-TA1**	
Heating load methodology	**UATD**	

System Checksums

By PBHA

System - 001 **Ventilation and Heating**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 0 / 0
Outside Air: OADB/WB/HR: 0 / 0 / 0

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	0	0	0
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	0		0	0
Sub Total ==>	0	0	0	0
Internal Loads				
Lights	0	0	0	0
People	0	0	0	0
Misc	0	0	0	0
Sub Total ==>	0	0	0	0
Ceiling Load	0	0	0	0
Ventilation Load	0	0	0	0
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			0	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	0	0	0	100.00

CLG SPACE PEAK

Mo/Hr: 0 / 0
OADB: 0

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	0	0
Sub Total ==>	0	0
Internal Loads		
Lights	0	0
People	0	0
Misc	0	0
Sub Total ==>	0	0
Ceiling Load	0	0
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	0	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 23

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	-2,110	-2,110	16.98
Glass Solar	0	0	0.00
Glass/Door Cond	-1,243	-1,243	10.00
Wall Cond	-2,232	-2,232	17.96
Partition/Door	0	0	0.00
Floor	-2,560	-2,560	20.60
Adjacent Floor	0	0	0
Infiltration	-2,635	-2,635	21.20
Sub Total ==>	-10,780	-10,780	86.75
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	0	0	0.00
Ventilation Load	0	-1,647	13.25
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-10,780	-12,427	100.00

TEMPERATURES

	Cooling	Heating
SADB	0.0	125.0
Ra Plenum	0.0	70.0
Return	0.0	70.0
Ret/OA	0.0	61.6
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	0	201
Terminal	0	201
Main Fan	0	201
Sec Fan	0	0
Nom Vent	0	36
AHU Vent	0	36
Infil	0	57
MinStop/Rh	0	0
Return	0	258
Exhaust	0	93
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	0.0	17.7
cfm/ft²	0.00	0.28
cfm/ton	0.00	
ft²/ton	0.00	
Btu/hr·ft²	0.00	-17.43
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	713		
Part	0		
Int Door	0		
ExFlr	108		
Roof	713	0	0
Wall	1,853	0	0
Ext Door	131	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-12.4	201	61.6	125.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-12.4			

APPENDIX F

ANSI/ASHRAE STANDARD 189.1 COMPLIANCE

CORRECTED FINAL SUBMISSION
12 SEPTEMBER 2012

Indoor Environmental Quality (IEQ) Compliance Documentation – Mandatory

Project Name: U.S. Army Criminal Investigations Command--Detachment 24	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
§8.3.1: Indoor Air Quality			
❑	❑	§8.3.1: The building complies with Section 4 of ANSI/ASHRAE Standard 62.1. Provide ANSI/ASHRAE Standard 62.1-2007 Appendix H checklist to document compliance with Section 4.3 requirements.	
❑	❑	§8.3.1: The building complies with Section 5 of ANSI/ASHRAE Standard 62.1 except as noted below. When a requirement is provided below, it supersedes the requirement in ANSI/ASHRAE Standard 62.1. Provide ANSI/ASHRAE Standard 62.1-2007 Appendix H checklist to document Section 5.2.3 requirements.	
❑	❑	§8.3.1.3a1: The particulate matter filters or air cleaners have a MERV of not less than 8, and comply with and are provided where required in Section 5.9 of ANSI/ASHRAE Standard 62.1. (Include document reference for specifications.)	Not provided at this level of detail.
❑	❑	§8.3.1.4a: Smoking is not allowed inside the building.	Sheet A-703; Sign is provided, but location is not indicated at this level of detail.
❑	❑	§8.3.1.4a: Signs stating that smoking is not allowed inside the building have been posted within 10 ft (3 m) of each building entrance.	Sheet A-703; Sign is provided, but location is not indicated at this level of detail.
❑	❑	§8.3.1.4b: Any exterior designated smoking areas are located a minimum of 25 ft (7.5 m) away from building entrances, outdoor air intakes, and operable windows.	Not provided at this level of detail.
❑	❑	§8.3.1: The building complies with Section 6 of ANSI/ASHRAE Standard 62.1 except as noted below. When a requirement is provided below, it supersedes the requirement in ANSI/ASHRAE Standard 62.1. Provide ANSI/ASHRAE Standard 62.1-2007 Appendix H checklist to document Section 6.2 compliance.	
❑	❑	§8.3.1.1a: The Ventilation Rate Procedure of ANSI/ASHRAE Standard 62.1 was used to design each mechanical ventilation system in the building.	Design Narrative; Appendix E: Energy Modeling; ASHRAE Standard 62.1-2004/2007.
❑	❑	§8.3.1.3a1: (PM_{10}) The building is located in an area designated as the following (Attainment or Non-attainment) under the National Ambient Air Quality Standards for PM_{10}, as determined by the AHJ: **Status (If 8.3.1.3a1 applies, PM_{10}):** ❑ Attainment ❑ Non-attainment ❑ Particulate matter filters and air cleaning devices with MERVs of not less than 8 have been provided to clean the air at any location prior to its introduction to occupied space, as required in Section 6.2.1.1 of ANSI/ASHRAE Standard 62.1. (Include document reference for specifications.)	**Source of Information**
❑	❑	§8.3.1.3a2: (PM2.5) The building is located in an area designated as the following under the National Ambient Air Quality Standards for PM2.5, as determined by the AHJ: **Status (If 8.3.1.3a2 applies, PM2.5):** ❑ Attainment ❑ Non-attainment ❑ Particulate matter filters and air-cleaning devices with MERVs of not less than 13 have been provided to clean the air at any location prior to its introduction to occupied space, as required in Section 6.2.1.1 of ANSI/ASHRAE Standard 62.1. (Include document reference for specifications.)	**Source of Information**

Indoor Environmental Quality (IEQ) Compliance Documentation – Mandatory

Project Name: U.S. Army Criminal Investigations Command--Detachment 24	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
§8.3.1: Indoor Air Quality Cont.			
❑	❑	§8.3.1.3b: (Ozone) The building is located in an area designated as the following under the National Ambient Air Quality Standards for ozone as determined by the AHJ: **Status (If 8.3.1.3b applies, Ozone):** ❑ Attainment ❑ Non-attainment ❑ Air cleaning devices with a volumetric ozone removal efficiencies of not less than 40% have been provided to clean the air at any location prior to its introduction to occupied space, as required in Section 6.2.1.1 of ANSI/ASHRAE Standard 62.1. (Include document reference for specifications.)	**Source of Information**
❑	❑	§8.3.1.3c: All filter frames, air cleaner racks, access doors, and air cleaner cartridges are sealed. (Include document reference for specifications.)	Not provided at this level of detail.
❑	❑	§8.3.1: The building complies with Section 7 of ANSI/ASHRAE Standard 62.1.	
❑	❑	§8.3.1.2.1: A permanently mounted, direct total outdoor airflow measurement device has been provided that is capable of measuring the system outdoor airflow rate within an accuracy of ±15% of the minimum outdoor airflow rate. It is also capable of sending an alarm to the building operator or a signal to a building central monitoring system when flow rates are not in compliance. ❑ Exception §8.3.1.2.1: Constant volume air supply systems that use a damper position feedback system are not required to have a direct total outdoor airflow measurement device.	Not provided at this level of detail.
❑	❑	§8.3.1.5: All building entrances employ an entry mat system with a scraper surface, an absorption surface, and a finishing surface.	A-604; vestibules indicate a walk-off-mat system with an absorption and finishing surface in the entry vestibules. Scraper surfaces shall be applied outside the first entry door per ASHRAE 189.1-2009, 8.3.1.5.1 *Scraper Surface* requirements.
❑	❑	§8.3.1.5: Each scraper surface, absorption surface, and finishing surface is as wide as the entry opening, and has a minimum length of 10 ft, measured in the primary direction of travel. Exceptions §8.3.1.5: ❑ 1) Entrances to individual dwelling units. ❑ 2) Length of entry mat surfaces is allowed to be reduced due to a barrier, such as a counter, artition, or wall, or local regulations prohibiting the use of scraper surfaces outside the entry. In this case entry mat surfaces have a minimum length of 3 ft (1 m) of indoor surface, with a minimum combined length of 6 ft (2 m).	Not provided at this level of detail.
❑	❑	§8.3.1.5.1a: The scraper surface is the first surface stepped on when entering the building.	Not provided at this level of detail.
❑	❑	§8.3.1.5.1b: The scraper surface is either immediately outside or inside the entry.	Not provided at this level of detail.
❑	❑	§8.3.1.5.1c: The scraper surface is a minimum of 3 ft (1 m) long.	Not provided at this level of detail.
❑	❑	§8.3.1.5.1d: The scraper surface consists of either permanently mounted grates or removable mats with knobby or squeegee-like projections.	Not provided at this level of detail.
❑	❑	§8.3.1.5.2a: The absorption surface is the second surface stepped on when entering the building.	Not provided at this level of detail.

Indoor Environmental Quality (IEQ) Compliance Documentation – Mandatory

Project Name: U.S. Army Criminal Investigations Command--Detachment 24	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
❑	❑	§8.3.1.5.2b: The absorption surface is a minimum of 3 ft (1 m) long, and made from materials that can perform both a scraping action and a moisture wicking action.	Not provided at this level of detail.
❑	❑	§8.3.1.5.3a: The finishing surface is the third surface stepped on when entering the building.	Not provided at this level of detail.
❑	❑	§8.3.1.5.3b: The finishing surface is a minimum of 4 ft (1.2 m) long, and made from material that will both capture and hold any remaining particles or moisture.	Not provided at this level of detail.

Indoor Environmental Quality (IEQ) Compliance Documentation – Mandatory

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Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
§8.3.2: Thermal Environmental Conditions for Human Occupancy			
❑	❑	§8.3.2: The building has been designed in compliance with ANSI/ASHRAE Standard 55, Sections 6.1, "Design," and 6.2, "Documentation of ANSI/ASHRAE Standard 55." Provide ANSI/ASHRAE Standard 55 compliance form (Addendum H) to document compliance with section 6.2. ❑ Exception §8.3.2: Spaces with special requirements for processes, activities, or contents that require a thermal environment outside that which humans find thermally acceptable, such as food storage, natatoriums, shower rooms, saunas, and drying rooms.	
§8.3.3: Acoustical Control			
❑	❑	§8.3.3.1: Wall and roof-ceiling assemblies that are part of the building envelope have a composite OITC rating of 40 or greater or a composite STC rating of 50 or greater for any of the following conditions: a. Buildings within 1000 ft (300 m) of expressways. b. Buildings within 5 mi (8 km) of airports serving more than 10,000 commercial jets per year. c. Where yearly average day-night average sound levels at the property line exceed 65 decibels Composite STC or OITC rating of wall and roof-ceiling assemblies that are part of the building envelope:	
❑	❑	§8.3.3.1: Fenestration that is part of the building envelope shall have an OITC or STC rating of 30 or greater for any of the following conditions: a. Buildings within 1000 ft (300 m) of expressways. b. Buildings within 5 mi (8 km) of airports serving more than 10,000 commercial jets per year. c. Where yearly average day-night average sound levels at the property line exceed 65 decibels. Composite STC or OITC rating of fenestration that are part of the building envelope:	
		❑ Exception §8.3.3.1: Buildings that may have to adhere to functional and operational requirements such as factories, stadiums, storage, enclosed parking structure, and utility	
✓	❑	§8.3.3.2: Interior wall and floor/ceiling assemblies separating interior rooms and spaces have been designed in accordance with all of the following: a. Wall and floor/ceiling assemblies separating adjacent dwelling units, dwelling units and public spaces, adjacent tenant spaces, tenant spaces and public places, and adjacent classrooms have a composite STC rating of 50 or greater. b. Wall and floor/ceiling assemblies separating hotel rooms, motel rooms, and patient rooms in nursing homes and hospitals have a composite STC rating of 45 or greater. c. Wall and floor/ceiling assemblies separating classrooms from restrooms and showers have a composite STC rating of 53 or greater. d. Wall and floor/ceiling assemblies separating classrooms from music rooms, mechanical rooms, cafeteria, gymnasiums, and indoor swimming pools have a composite STC rating of 60 or greater.	Wall types are labeled on A-101. Wall type sound ratings are listed on A-601.
✓		Composite STC rating of wall and floor/ceiling assemblies separating adjacent dwelling units, dwelling units and public spaces, adjacent tenant spaces, tenant spaces and public places, and adjacent classrooms: (Attach additional table if necessary.)	Wall types are labeled on A-101. Wall type sound ratings are listed on A-601.
	✓	Composite STC rating of wall and floor/ceiling assemblies separating hotel rooms, motel rooms, and patient rooms in nursing homes and hospitals: (Attach additional table if necessary.)	

Indoor Environmental Quality (IEQ) Compliance Documentation – Mandatory

Project Name: U.S. Army Criminal Investigations Command--Detachment 24	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
✓		Composite STC rating of wall and floor-ceiling assemblies separating classrooms from restrooms and showers: (Attach additional table if necessary.)	Wall types are labeled on A-101. Wall type sound ratings are listed on A-601.
✓		Composite STC rating of wall and floor/ceiling assemblies separating classrooms from music rooms, mechanical rooms, cafeteria, gymnasiums, and indoor swimming pools: (Attach additional table if necessary.)	Wall types are labeled on A-101. Wall type sound ratings are listed on A-601.

Indoor Environmental Quality (IEQ) Compliance Documentation – Mandatory

Project Name: U.S. Army Criminal Investigations Command--Detachment 24	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
§8.3.3: Acoustical Control Cont.			
❑	❑	§8.3.3.3: OITC values for assemblies and components have been determined in accordance with ASTM E1332. STC values for assemblies and components have been determined in accordance with ASTM E90 and ASTM E413.	
§8.3.4: Daylighting by Toplighting			
❑	✓	§8.3.4: In buildings three stories or less above grade, conditioned or unconditioned enclosed spaces that are greater than 20,000 ft^2 (2000 m^2) and directly under a roof with finished ceiling heights greater than 15 ft (4 m), and that have a lighting power allowance for general lighting equal to or greater than 0.5 W/ft^2 (5.5 W/m^2), there is a minimum fenestration area providing daylighting by toplighting for large enclosed spaces. Exceptions §8.3.4: ❑ 1) Buildings in climate zones 7 or 8. ❑ 2) Auditoria, theaters, museums, places of worship, and refrigerated warehouses.	
❑	✓	§8.3.4.1: In buildings specified in §8.3.4, a minimum of 50% of the floor area directly under a roof in spaces with a lighting power density or lighting power allowance greater than 0.5 W/ft2 (5.5 W/m2) are in the daylight area.	
❑	✓	§8.3.4.1: In buildings specified in §8.3.4, areas that are daylit have a minimum toplighting area to daylight area ratio as shown in Table 8.3.4.1. For purposes of compliance with Table 8.3.4.1, the greater of the space lighting power density and the space lighting power allowance has been used.	
❑	✓	§8.3.4.2: In buildings specified in §8.3.4, skylights used to comply with Section 8.3.4.1 have a glazing material or diffuser that has a measured haze value greater than 90%, tested according to ASTM D1003 (notwithstanding its scope) or other test method approved by the Exceptions §8.3.4.2: ❑ 1) Skylights with a measured haze value less than or equal to 90% whose combined area does not exceed 5% of the total skylight area. ❑ 2) Tubular daylighting devices with a diffuser. ❑ 3) Skylights that are capable of preventing direct sunlight from entering the occupied space below the well during occupied hours. This shall be accomplished using one or more of the following: a. orientation b. automated shading or diffusing devices c. diffusers d. fixed internal or external baffles ❑ 4) Skylights in airline terminals, convention centers, and shopping malls.	
§8.3.5: Isolation of the Building from Pollutants in Soil			

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Project Address:	Date: 12 September 2012
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City:	

Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
❑	❑	§8.3.5: Building projects that include construction or expansion of a ground-level foundation and that are located on brownfield sites or in "zone 1" counties for radon (those identified to have a significant probability of radon concentrations higher than 4 picocuries/liter on the EPA map of radon zones) have a soil gas retarding system installed between the newly constructed space and the soil. **Status (If 8.3.5 applies, Radon):** ❑ Brownfield site ❑ Building has a soil gas retarding system installed between the newly constructed space and the soil. (Include document reference for specifications.) ❑ Radon county in zone 1 ❑ Building has a soil gas retarding system installed between the newly constructed space and the soil. (Include document reference for specifications.)	**Source of Information**

The proposed and baseline buildings comply with the mandatory requirements of ANSI/ASHRAE/USGBC/IES Standard 189.1-2009. Individual certifying authenticity of the data provided in this analysis:

Signature: Date:	
Printed Name: License/Registration #:	
Company Name:	

Indoor Environmental Quality (IEQ) Compliance Documentation – Prescriptive

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Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
		§8.4.1: Daylighting by Sidelighting	
✓	❑	§8.4.1.1a: For office spaces and classrooms, all north-, south-, and east-facing facades have a minimum sidelighting effective aperture as prescribed in Table 8.4.1.1.	
		North-side facade sidelighting effective aperture: 0.237	173133A_CIC_Det24_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1a Part 1/2
		South-side façade sidelighting effective aperture: 0.231	173133A_CIC_Det24_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1a Part 1/2
		East-side facade sidelighting effective aperture: 0.249	173133A_CIC_Det24_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1a Part 1/2
✓	❑	§8.4.1.1b: For office spaces and classrooms, the combined width of the primary sidelighted areas is at least 75% of the length of the facade wall.	
		North-side combined width of the primary sidelighted areas: 89'-10 13/16"	173133A_CIC_Det24_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1b Part 1
		North-side length of the wall: 120'-1 5/8"	173133A_CIC_Det24_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1b Part 2
		South-side combined width of the primary sidelighted areas: 102'-7 1/8"	173133A_CIC_Det24_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1b Part 1
		South-side length of the wall: 133'-6 7/8"	173133A_CIC_Det24_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1b Part 2
		East-side combined width of the primary sidelighted areas: 62'-5 3/4"	173133A_CIC_Det24_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1b Part 1
		East-side length of the wall: 72'-6 3/4"	173133A_CIC_Det24_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1b Part 2
❑	❑	§8.4.1.1c: Opaque interior surfaces of office spaces and classrooms in daylight areas have visible light reflectances greater than or equal to 80% for ceilings and 70% for partitions higher than 60 in. (1.54 m) in daylight areas.	
		Visible light reflectances of opaque interior ceiling surfaces:	Not provided at this level of detail.
		Visible light reflectances of opaque interior partitions higher than 60 in. (1.54 m):	Not provided at this level of detail.
		Exceptions §8.4.1.1: ❑ 1) Spaces with programming that requires dark conditions (e.g., photographic processing). ❑ 2) Spaces with toplighting in compliance with Section 8.3.4. ❑ 3) Daylight zones where the height of existing adjacent structures above the window is at least twice the distance between the window and the adjacent structures, measured from the top of the glazing.	
✓	❑	§8.4.1.2: Each west-, south-, and east-facing façade of office spaces, has been designed with a shading projection whose PF is not less than 0.5.	
		1) West-facing façade shading PF: 0.51	Design Analysis, Appendix F: ANSI/ASHRAE Standard 189.1 Compliance
		or	
		1) West-facing façade shading interior PF:	
		2) South-facing façade shading PF: 0.51	Design Analysis, Appendix F: ANSI/ASHRAE Standard 189.1 Compliance

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Complies	Not applicable	Requirement	Document Reference
		or 2) South-facing façade shading interior PF: 3) East-facing façade shading PF: 0.51 or 3) East-facing façade shading interior PF:	Design Analysis, Appendix F: ANSI/ASHRAE Standard 189.1 Compliance
✓	❑	§8.4.1.2a and b: Office spaces use one or more of the following shading devices: a. Louvers, sun shades, light shelves, and any other permanent device. b. Building self-shading through roof overhangs or recessed windows.	

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Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
§8.4.1: Daylighting by Sidelighting Cont.			
❑	✓	§8.4.1.2a: A vertical fenestration that employs a combination of interior and external shading has been separated into multiple segments for compliance purposes. Each segment complies with the requirements for either external or interior PF. Attach additional sheets following a format similar to below: Segment A: 1) West-facing façade shading PF: Segment B: 1) West-facing façade shading interior PF: Segment C: 1) West-facing façade shading interior PF: Segment D: 2) South-facing façade shading PF: Segment E:	
		2) South-facing façade shading interior PF:	
		Exceptions §8.4.1.2: ❑ 1) Translucent panels and glazing systems with a measured haze value greater than 90%, tested according to ASTM D1003 (notwithstanding its scope) or other test method approved by the AHJ, and that are entirely 8 ft (2.5 m) above the floor, do not require external shading devices. ❑ 2) Vertical fenestration that receives direct solar radiation for less than 250 hours per year because of shading by permanent external buildings, existing permanent infrastructure, or topography.	
§8.4.2: Materials			
❑	❑	§8.4.2: Reported emissions or VOC contents of materials specified below are from a representative product sample and conducted with each product reformulation or at a minimum every three years.	Not provided at this level of detail.
❑	❑	§8.4.2: Products certified under third-party certification programs as meeting the specific emission or VOC content requirements listed below are exempted from this three-year testing requirement but shall meet all the other requirements listed below.	Not provided at this level of detail.
		§8.4.2.1: Adhesives and Sealants	
❑	❑	§8.4.2.1: All adhesives and sealants used on the interior of the building (defined as inside of the weatherproofing system and applied on site) comply with the requirements of either Section 8.4.2.1.1 or 8.4.2.1.2. (Include document reference to specifications.)	Not provided at this level of detail.
❑	❑	§8.4.2.1.1: Emissions of adhesives and sealants have been determined according to CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350) and comply with the limit requirements for either office or classroom spaces, regardless of the space type. (Attach a separate summary sheet and insert document reference.)	Not provided at this level of detail.

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Complies	Not applicable	Requirement	Document Reference
§8.4.2: Materials Cont.			
❑	❑	§8.4.2.1.2: VOC content complies with and has be determined according to the following limit requirements: (Attach a separate summary sheet and insert document reference.) a. Adhesives, sealants and sealant primers: SCAQMD Rule 1168. HVAC duct sealants have been classified as "Other" category within the SCAQMD Rule 1168 sealants table. b. Aerosol adhesives: Green Seal Standard GS-36.	Not provided at this level of detail.
		Exceptions §8.4.2.1: Not required to meet the emissions or the VOC content requirements: ❑ 1) Cleaners, solvent cements, and primers used with plastic piping and conduit in plumbing, fire suppression, and electrical systems. ❑ 2) HVAC air duct sealants when the air temperature of the space in which they are applied is less than 40°F (4.5°C).	Not provided at this level of detail.
		§8.4.2.2: Paints and Coatings	
❑	❑	§8.4.2.2: Paints and coatings used on the interior of the building (defined as inside of the weatherproofing system and applied on site) comply with either Section 8.4.2.2.1 or 8.4.2.2.2. (Include document reference to specifications.)	Not provided at this level of detail.
❑	❑	§8.4.2.2.1: Emissions of paints and coatings have been determined according to CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350) and comply with the limit requirements for either office or classroom spaces, regardless of the space type. (Attach a separate summary sheet and insert document reference.)	Not provided at this level of detail.
		or	
❑	❑	§8.4.2.2.2: VOC content complies with and has be determined according to the following limit requirements: (Attach a separate summary sheet and insert document reference.) a. Architectural paints, coatings, and primers applied to interior surfaces: Green Seal Standard GS-11. b. Clear wood finishes, floor coatings, stains, sealers, and shellacs: SCAQMD Rule 1113.	Not provided at this level of detail.
		§8.4.2.3: Floor Covering Materials	
❑	❑	§8.4.2.3a: Carpet has been tested in accordance with and shown to be compliant with the requirements of CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350). Products that have been verified and labeled to be in compliance with Section 9 of the CA/DHS/EHLB/R-174 comply with this requirement. (Include document reference to specifications. Attach a separate summary sheet and insert document reference.)	Not provided at this level of detail.
❑	❑	§8.4.2.3b: Hard surface flooring in office spaces and classrooms has been tested in accordance with and shown to be compliant with the requirements of CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350). (Include document reference to specifications. Attach a separate summary sheet and insert document reference.)	Not provided at this level of detail.
		§8.4.2.4: Composite Wood, Wood Structural Panel, and Agrifiber Products	
❑	❑	§8.4.2.4: All composite wood, wood structural panel, and agrifiber products contain no added urea-formaldehyde resins. (Include document reference to specifications. Attach a separate summary sheet and insert document reference.)	Not provided at this level of detail.

Indoor Environmental Quality (IEQ) Compliance Documentation – Prescriptive

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Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
❑	❑	§8.4.2.4: All laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies contain no added urea-formaldehyde resins. (Include document reference to specifications. Attach a separate summary sheet and insert document reference.)	Not provided at this level of detail.

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Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
§8.4.2: Materials Cont.			
❑	❑	§8.4.2.4: If the no-added-urea-formaldehyde requirement cannot be met for a specific product (noted below), the project complies with one of the following (attach additional sheets if necessary):	Not provided at this level of detail.
		Name of product, manufacturer and supplier:	
		❑ California Air Resource Board's (CARB) regulation "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products," as shown through third-party certification approved by CARB. ❑ CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350) and shall comply with the limit requirements for either office or classroom spaces regardless of the space type.	
		❑ Exception §8.4.2.4: Structural panel components such as plywood, particle board, wafer board, and oriented strand board identified as "EXPOSURE 1," "EXTERIOR," or "HUD-APPROVED" are considered acceptable for interior use.	
		§8.4.2.5: Office Furniture Systems and Seating	
❑	❑	§8.4.2.5: All office furniture systems and seating installed prior to occupancy have been tested according to ANSI/BIFMA Standard M7.1.	Not provided at this level of detail.
❑	❑	§8.4.2.5: At least 95% of total number of installed office workstations and 95% of total number of seating units installed meet either the emissions concentration limits in Standard M7.1's Table E1.1 or the emission factors in Table E1.2.	Not provided at this level of detail.
❑	❑	§8.4.2.5: At least 50% of the total number of installed office workstations and 50% of the total number of seating units installed meet the VOC concentration limits of Table E1.3.	Not provided at this level of detail.
		§8.4.2.6: Ceiling and Wall Systems	
❑	❑	§8.4.2.6: Emissions of all ceiling and wall systems have been determined according to CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350) and comply with the limit requirements for either office or classroom spaces regardless of the space type. (Include document reference to specifications. Attach a separate summary sheet and insert document reference.)	Not provided at this level of detail.

The proposed and baseline buildings comply with the mandatory requirements of ANSI/ASHRAE/USGBC/IES Standard 189.1-2009 and meet the Prescriptive Option requirements. Individual certifying authenticity of the data provided in this analysis:

Signature: Date:	
Printed Name: License/Registration #:	
Company Name:	

Energy Efficiency Compliance Documentation – Mandatory

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Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
§7.3.1: General			
❑	❑	§7.3.1: The building project has been designed to comply with Sections 5.4, 6.4, 7.4, 8.4, 9.4, and 10.4 of ANSI/ASHRAE/IESNA Standard 90.1.	
§7.3.2: On-Site Renewable Energy Systems			
❑	❑	§7.3.2: The building project provides for the future installation of on-site renewable energy systems with a minimum rating of 3.7 W/ft^2 or 13 Btu/h·ft^2 (40 W/m^2) multiplied by the total roof area in ft^2 (m^2).	
❑	❑	§7.3.2: The building project design shows allocated space and pathways for installation of on-site renewable energy systems and associated infrastructure. ❑ Exception: The building project has an annual daily average incident solar radiation (available to a flat plate collector oriented due south at an angle from horizontal equal to the latitude of the collector location) of less than 4.0 kW/m^2·day, accounting for existing buildings, permanent infrastructure that is not part of the building project, topography, or trees.	
§7.3.3: Energy Consumption Management			
❑	❑	§7.3.3.1: Measurement devices with remote communication capability have been provided to collect energy consumption data for each energy supply source to the building (including gas, electricity, and district energy) that exceeds the thresholds listed in Table 7.3.3.1A. Measurement devices have the capability to automatically communicate energy consumption data to a data acquisition system.	Not provided at this level of detail.
❑	❑	§7.3.3.1: For all buildings that exceed the thresholds in Table 7.3.3.1A, measurement devices with remote capability (including current sensors or flow meters) have been provided to measure energy consumption data of each subsystem for each use category that exceeds the thresholds listed in Table 7.3.3.1B. Measurement devices have the capability to automatically communicate energy consumption data to a data acquisition system.	Not provided at this level of detail.
❑	❑	§7.3.3.2: All building measurement devices have been configured to automatically communicate energy data to the data acquisition system.	Not provided at this level of detail.
❑	❑	§7.3.3.2: All building measurement devices provide daily data and record hourly energy profiles. The hourly energy profiles are capable of being used to assess building performance at least monthly.	Not provided at this level of detail.
❑	❑	§7.3.3.3: The data acquisition system is capable of electronically storing the data from the measurement devices and other sensing devices for a minimum of 36 months, and creating user reports showing hourly, daily, monthly, and annual energy consumption. ❑ Exception: Portions of buildings used as residential.	Not provided at this level of detail.

The proposed and baseline buildings comply with the mandatory requirements of ANSI/ASHRAE/USGBC/IES Standard 189.1-2009. Individual certifying authenticity of the data provided in this analysis:

Signature: Date:	
Printed Name: License/Registration #:	
Company Name:	

Energy Efficiency Compliance Documentation – Prescriptive

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Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
§7.4.1: General			
❑	❑	§7.4.1: When a requirement is provided below, it supersedes the requirement in ANSI/ASHRAE/IESNA Standard 90.1. For all other criteria, the building project complies with the requirements of ANSI/ASHRAE/IESNA Standard 90.1.	
§7.4.1.1: On-Site Renewable Energy Systems			
✓	❑	§7.4.1.1: The building project contains on-site renewable energy systems that together provide annual energy production equivalent to not less than 6.0 KBtu/ft^2 (20 kWh/m^2) of conditioned space. ❑ Exception: The building demonstrates compliance with both of the following and is not required to have an on-site renewable energy system: 1. An annual daily average incident solar radiation available to a flat plate collector oriented due south at an angle from horizontal equal to the latitude of the collector location of less than 4.0 kW/m^2·day, accounting for existing buildings, permanent infrastructure that is not part of the building project, topography, and trees. 2. Purchase of renewable electricity products complying with the Green-e Energy National Standard for Renewable Electricity Products of at least 7 kWh/ft^2 (75 kWh/m^2) of conditioned space each year until the cumulative purchase totals 70 kWh/ft^2 (750 kWh/m^2) of conditioned space.	Design Analysis, Appendix E: Energy Modeling
§7.4.2: Building Envelope			
❑	❑	§7.4.2: The building envelope complies with Section 5 of ANSI/ASHRAE/IESNA Standard 90.1 with the following modifications and additions.	
✓	❑	§7.4.2.1: The building envelope complies with the requirements in Tables A-1 to A-8 in Normative Appendix A. These requirements supersede the requirements in Tables 5.5-1 to 5.5-8 of ANSI/ASHRAE/IESNA Standard 90.1. ❑ Exception: Buildings that comply with Section 8.3.4 regardless of building area are exempt from the SHGC criteria for skylights.	Design Analysis, Appendix A: Project Tracking Sheet
✓	❑	§7.4.2.2: Roofs comply with the provisions of Section 5.3.2.3 and Tables A-1 to A-8 of this standard. Section 5.5.3.1.1 of ANSI/ASHRAE/IESNA Standard 90.1 and Table 5.5.3.1 of ANSI/ASHRAE/IESNA Standard 90.1 were not used.	Design Analysis, Appendix A: Project Tracking Sheet
❑	✓	§7.4.2.3: Single-rafter roofs comply with the requirements in Table A-9 in Normative Appendix A. These requirements supersede the requirements in Section A2.4.2.4 of ANSI/ASHRAE/IESNA Standard 90.1. Section A2.4.2.4 and Table A2.4.2 of ANSI/ASHRAE/IESNA Standard 90.1 were not used.	
✓	❑	§7.4.2.4: The total vertical fenestration area is less than 40% of the gross wall area. This requirement supersedes the requirement in Section 5.5.4.2.1 of ANSI/ASHRAE/IESNA Standard 90.1.	Design Analysis, Appendix A: Project Tracking Sheet
❑	❑	§7.4.2.5: For climate zones 1–5, the vertical fenestration on the west, south, and east is shaded by permanent projections that have an area-weighted average PF of not less than 0.50. ❑ Exception: Vertical fenestration that receives direct solar radiation for fewer than 250 hours per year because of shading by permanent external buildings, existing permanent infrastructure, or topography.	Design Analysis, Appendix F: ANSI/ASHRAE Standard 189.1 Compliance

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Complies	Not applicable	Requirement	Document Reference
§7.4.2: Building Envelope Cont.			
✓	❑	§7.4.2.6: For SHGC compliance, the methodology in exception (b) to Section 5.5.4.4.1 of ANSI/ASHRAE/IESNA Standard 90.1 were applied (provided that the SHGC multipliers in Table 7.4.2.6 are used). This requirement supersedes the requirement in Table 5.5.4.4.1 of ANSI/ASHRAE/IESNA Standard 90.1. Table 5.5.4.4.1 of ANSI/ASHRAE/IESNA Standard 90.1 was not applied.	Design Analysis, Appendix F: ANSI/ASHRAE Standard 189.1 Compliance
✓	❑	§7.4.2.6: The vertical fenestration is north-oriented and has a maximum SHGC of 0.10 greater than that specified in Tables A-1 through A-8 in Normative Appendix A. Separate calculations were performed for these sections of the building envelope, and these values were not averaged with any others for compliance purposes.	A-603, Window Schedule
✓	❑	§7.4.2.7: For vestibules, the exceptions to Section 5.4.3.4 of ANSI/ASHRAE/IESNA Standard 90.1 were applied (provided that climate zone 4 is deleted from exception (e) to Section 5.4.3.4 of ANSI/ASHRAE/IESNA Standard 90.1 and that climate zone 4 is added to exception (f) to Section 5.4.3.4 of ANSI/ASHRAE/IESNA Standard 90.1).	
✓	❑	§7.4.2.8: The building envelope trade-off option in Section 5.6 of ANSI/ASHRAE/IESNA Standard 90.1 was not applied (unless the procedure incorporates the modifications and additions to ANSI/ASHRAE/IESNA Standard 90.1 noted in Section 7.4.2).	
✓	❑	§7.4.2.9a: To reduce solar gains from the east and west in climate zones 1 through 4, the fenestration area and SHGC complies with the calculation in 7.4.2.9a.	173133A_CIC_BTH_Architectural: Schedule: ASHRAE 189.1-2009, 7.4.2.9a Part 1/2
❑	✓	§7.4.2.9b: To reduce solar gains from the west in climate zones 5 and 6, the fenestration area and SHGC complies with the calculation in 7.4.2.9b. Exceptions 7.4.2.9: ❑ a. Vertical fenestration that complies with the exception to Section 5.5.4.4.1 (c) of ANSI/ASHRAE/IESNA Standard 90.1. ❑ b. Buildings that have an existing building or existing permanent infrastructure within 20 ft (6 m) to the south or north that is at least half as tall as the proposed building. ❑ c. Buildings with shade on 75% of the west- and east-oriented vertical fenestration areas from existing buildings, existing permanent infrastructure, or topography at 9 a.m. and 3 p.m. on the summer solstice. ❑ d. Alterations and additions with no increase in vertical fenestration area.	
✓	❑	§7.4.2.10: The building envelope was designed and constructed with a continuous air barrier that complies with Normative Appendix B to control air leakage into, or out of, the conditioned space. All air barrier components of each envelope assembly are clearly identified on construction documents and the joints, interconnections, and penetrations of the air barrier components are detailed. ❑ Exception: Building envelopes of semiheated spaces provided that the building envelope complies with Section 5.4.3.1 of ANSI/ASHRAE/IESNA Standard 90.1.	Sheet A-311: This requirement is partially fulfilled--the remainder of the documentation requirements are not provided at this level of detail.

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Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
§7.4.3: Heating, Ventilating, and Air Conditioning			
❑	❑	§7.4.3: The heating, ventilating, and air conditioning complies with Section 6 of ANSI/ASHRAE/IESNA Standard 90.1 with the following modifications and additions.	
❑	❑	§7.4.3.1: The Project complies with one of the following: ❑ a. EPAct baseline. Products comply with the minimum efficiencies addressed in the National Appliance Energy Conservation Act (NAECA), Energy Policy Act (EPAct), and the Energy Indepen-dence and Security Act (EISA), or ❑ b. Higher Efficiency. Products comply with the greater of the ENERGY STAR requirements in Section 7.4.7.3 and the values in Normative Appendix C. These requirements supersede the requirements in Tables 6.8.1A to 6.8.1J of ANSI/ASHRAE/IESNA Standard 90.1. The building project complies with Sections 7.4.1.1 and 7.4.5.1 with the following modifications: 1. The on-site renewable energy systems required in Section 7.4.1.1 shall provide an annual energy production of not less than 4.0 kBtu/ft2 (13 kWh/m2). 2. The peak load reduction systems required in Section 7.4.5.1 shall be capable of reducing electric peak demand by not less than 5% of the projected peak demand.	Not provided at this level of detail.
❑	❑	§7.4.3.2: DCV is used for densely occupied spaces. This requirement supersedes the occupant density threshold in Section 6.4.3.9 of ANSI/ASHRAE/IESNA Standard 90.1.	
❑	❑	§7.4.3.2: The DCV system is designed to be in compliance with ANSI/ASHRAE Standard 62.1. Occupancy assumptions are shown in the design documents for spaces required to have DCV. All CO2 sensors used as part of a DCV system or any other system that dynamically controls outdoor air shall meet requirements a through d as listed in 7.4.3.2.	
❑	❑	§7.4.3.3: For duct sealing, Seal Level A was be used. This requirement supersedes the requirements in Table 6.4.4.2A of ANSI/ASHRAE/IESNA Standard 90.1.	Not provided at this level of detail.
❑	❑	§7.4.3.4: Systems have economizers meeting the requirements in Section 6.5.1 of ANSI/ASHRAE/IESNA 90.1 except as noted in 1 through 4 of 7.4.3.4. ❑ Exception: All the exceptions in Sections 6.5.1 and 6.5.1.3 of ANSI/ASHRAE/IESNA Standard 90.1 apply except as noted in 1 through 3 in 7.4.3.4 Exceptions.	Not provided at this level of detail.
❑	❑	§7.4.3.5: Exception (a) to Section 6.5.2.1 of ANSI/ASHRAE/IESNA Standard 90.1 have been replaced by the following: zones for which the volume of air that is reheated, re-cooled, or mixed is not greater than the larger of (1) the design outdoor airflow rate for the zone, or (2) 15% of the zone design peak supply rate.	Not provided at this level of detail.
❑	❑	§7.4.3.6: Systems have fan power limitations 10% below limitations specified in Table 6.5.3.1.1A of ANSI/ASHRAE/IESNA Standard 90.1. This requirement supersedes the requirement in Section 6.5.3.1 and Table 6.5.3.1.1A of ANSI/ASHRAE/IESNA Standard 90.1. All exceptions in Section 6.5.3.1 of ANSI/ASHRAE/IESNA Standard 90.1 shall apply.	Not provided at this level of detail.
❑	❑	§7.4.3.7a: DX systems with a capacity greater than 65,000 Btu/h (19 kW) have a minimum of two stages of cooling capacity.	Not provided at this level of detail.
❑	✓	§7.4.3.7b: Air-handling and fan-coil units with chilled-water cooling coils and supply fans with motors greater than or equal to 5 hp have their supply fans controlled by two-speed motors or variable-speed drives. At cooling demands less than or equal to 50%, the supply fan controls are able to reduce the airflow to no greater than the larger of the following: 1. Two-thirds of the full fan speed, or 2. The volume of outdoor air required to meet the ventilation requirements of ANSI/ASHRAE Standard 62.1.	

Energy Efficiency Compliance Documentation – Prescriptive

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Complies	Not applicable	Requirement	Document Reference
§7.4.3: Heating, Ventilating, and Air Conditioning Cont.			
❑	❑	§7.4.3.7c: All air-conditioning equipment and air-handling units with direct expansion cooling and a cooling capacity at AHRI conditions greater than or equal to 110,000 Btu/h (32.2 kW) that serve single zones have their supply fans controlled by two-speed motors or variable-speed drives. . At cooling demands less than or equal to 50%, the supply fan controls are able to reduce the airflow to no greater than the larger of the following: 1. Two-thirds of the full fan speed, or 2. The volume of outdoor air required to meet the ventilation requirements of ANSI/ASHRAE Standard 62.1.	Not provided at this level of detail.
❑	❑	§7.4.3.7d: d. All DX and chilled-water VAV units are equipped with variable-speed fans that result in less than 30% power at 50% flow. ❑ Exception 7.4.3.7: When air ventilation rates or air exchange rates require constant volume fan operation.	Not provided at this level of detail.
❑	❑	§7.4.3.8: Each fan system has an energy recovery system when the system's supply airflow rate exceeds the value listed in Table 7.4.3.8 based on the climate zone and percentage of outdoor air at design condi-tions. Where a single room or space is supplied by multiple units, the aggregate supply cfm (L/s) of those units was used in applying this requirement.	Not provided at this level of detail.
❑	❑	§7.4.3.8: Energy recovery systems required by this section have at least 60% energy recovery effectiveness. Sixty percent energy recovery effectiveness shall mean a change in the enthalpy of the outdoor air supply equal to 60% of the difference between the outdoor air and return air enthalpies at design condi-tions. Provisions have been made to bypass or control the energy recovery system to permit air economizer operation as required by Section 7.4.3.4.	Not provided at this level of detail.
❑	✓	§7.4.3.9: In addition to the requirements in Section 6.5.7.1 of ANSI/ASHRAE/IESNA Standard 90.1, commercial kitchen Type I and Type II hood systems have variable-speed control for exhaust and makeup air fans to reduce hood airflow rates at least 50% during those times when cooking is not occurring and the cooking appliances are up to temperature in a standby, ready-to-cook mode. All exceptions in Section 6.5.7.1 of ANSI/ASHRAE/IESNA Standard 90.1 shall apply.	
❑	❑	§7.4.3.10: Duct insulation complies with the minimum requirements in Tables C-9 and C-10 in Normative Appendix C. These requirements supersede the requirements in Tables 6.8.2A and 6.8.2B of ANSI/ASHRAE/IESNA Standard 90.1.	Not provided at this level of detail.
❑	❑	§7.4.3.11: Pipe insulation complies with the minimum requirements in Table C-11 in Normative Appendix C. These requirements supersede the requirements in Table 6.8.3 of ANSI/SHRAE/IESNA Standard 90.1. The exceptions a through e in Section 6.4.4.1.3 of ANSI/ASHRAE/IESNA Standard 90.1 shall apply.	Not provided at this level of detail.
❑	✓	§7.4.3.12: In hotels and motels with over 50 guest rooms, the lighting switched outlets, television, and HVAC equipment serving each guest room are automatically controlled such that the lighting, switched outlets, and televisions will be turned off and the HVAC setpoint raised at least 5°F (3°C) in the cooling mode and lowered at least 5°F (3°C) in the heating mode whenever the guest room is unoccupied.	

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Complies	Not applicable	Requirement	Document Reference
§7.4.4: Service Water Heating			
❑	❑	§7.4.4: The service water heating complies with Section 7 of ANSI/ASHRAE/IESNA Standard 90.1 with the following modifications and additions.	
❑	❑	§7.4.4.1: Equipment complies with the minimum efficiencies in Table C-12 in Normative Appendix C. These requirements supersede the requirements in Table 7.8 of ANSI/ASHRAE/IESNA Standard 90.1.	Not provided at this level of detail.
❑	❑	§7.4.4.2: Pipe insulation complies with Section 7.4.3.11. These requirements supersede the requirements in Section 7.4.3 of ANSI/ASHRAE/IESNA Standard 90.1.	Not provided at this level of detail.
❑	✓	§7.4.4.3: Pools heated to more than 90°F (32°C) have side and bottom surfaces insulated on the exterior with a minimum insulation value of R-12 (R-2.1).	
§7.4.5: Power			
❑	❑	§7.4.5: The power complies with Section 8 of ANSI/ASHRAE/IESNA Standard 90.1 with the following modifications and additions.	
❑	❑	§7.4.5.1: The Building project contains automatic systems, such as demand limiting or load shifting, that are capable of reducing electric peak demand of the building by not less than 10% of the projected peak demand. Standby power generation is not used to achieve the reduction in peak demand.	Not provided at this level of detail.
§7.4.6: Lighting			
❑	❑	§7.4.6: The lighting complies with Section 9 of ANSI/ASHRAE/IESNA Standard 90.1 as modified by Addendum i and the following modifications and additions.	
✓	❑	§7.4.6.1: The lighting power allowance is a maximum of 0.9 multiplied by the values determined in accordance with Sections 9.5 and 9.6. This requirement supersedes the requirements in Sections 9.5 and 9.6 of ANSI/ASHRAE/IESNA Standard 90.1.	173133A_CIC_BTH_Electrical.rvt: Schedule: ASHRAE 189.1 Lighting LPD
❑	❑	§7.4.6.2: Offices 250 ft2 (25 m2) or smaller; classrooms of any size; lecture, training, or vocational rooms of less than 1000 ft2 (100 m2); multipurpose rooms of less than 1000 ft2 (100 m2); conference rooms and meeting rooms less than 1000 ft2 (100 m2); and meeting centers are equipped with occupant sensor(s) to automatically turn lighting OFF within 30 minutes of all occupants leaving a space and allow “manual OFF” control. In addition, all occupancy sensor controls are either “manual ON” or bi-level “automatic ON” programmed to a low light level combined with multi-level circuitry and “manual ON” switching for higher light levels. Where such occupancy sensors are utilized within a daylit area and daylighting controls are utilized, the occupancy sensors work in conjunction with the daylighting controls complying with Section 7.4.6.5.	Not provided at this level of detail.
❑	❑	§7.4.6.3: The lighting in the areas listed in 7.4.63 are controlled by an occupant sensor with multi-level switching or dimming system that reduces lighting power a minimum of 50% when no persons are present. ❑ Exception: Areas lit by HID lighting with a lighting power density of 0.8 W/ft2 or less.	Not provided at this level of detail.
❑	❑	§7.4.6.4: Lighting in any area within a building that is required to be continuously illuminated for reasons of building security or emergency egress does not exceed 0.1 W/ft2 (1 W/m2). Any additional egress and security are controlled by an automatic control device that turns off the additional lighting.	Design Analysis, Appendix F: ANSI/ASHRAE Standard 189.1 Compliance

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Complies	Not applicable	Requirement	Document Reference
§7.4.6: Lighting Cont.			
❑	❑	§7.4.6.5: Lighting in all daylight zones, including daylight zones under skylights and daylight zones adjacent to vertical fenestration, where the combined daylight zone per enclosed space is greater than 250 ft2 (25 m2), are provided with controls that automatically reduce lighting power in response to available daylight by either: ❑ a. Continuous daylight dimming, or ❑ b. A combination of stepped switching and daylight-sensing automatic controls, which are capable of incrementally reducing the light level in steps automatically and turning the lights off automatically. Exceptions: ❑ 1. Window display and exhibition lighting. ❑ 2. Conference rooms greater than 250 ft2 (25 m2) that have a lighting control system with at least four scene options. ❑ 3. Lighting in conference rooms that is dimmable and controlled by dimming controls that are located within the space and accessible to the space occupants. ❑ 4. Saunas, steam rooms, and spaces containing swimming pools or spa pools. ❑ 5. Spaces where medical procedures are performed. ❑ 6. Spaces within dwelling units. ❑ 7. Spaces within hotel and motel guest rooms and suites. ❑ 8. Daylight zones where the height of existing adjacent structures above the window is at least twice the distance between the window and adjacent structures, measured from the top of the glazing.	Not provided at this level of detail.
❑	❑	§7.4.6.6: Occupancy sensors have “manual ON”, “automatic OFF” controls. ❑ Exception: Occupancy sensor controls required in Section 7.4.6.3.	Not provided at this level of detail.
❑	❑	§7.4.6.7: All outdoor lighting controls comply with Section 9 of ANSI/ASHRAE/IESNA Standard 90.1 with the following modifications and additions. For lighting of building facades, parking lots, garages, canopies (sales and non-sales), and all outdoor sales areas, automatic controls are installed to reduce the sum of all lighting power (in watts) by a minimum of 50% one hour after normal business closing and to turn off outdoor lighting within 30 minutes after sunrise. Exceptions: ❑ 1. Lighting required by a health or life safety statute, ordinance, or regulation, including but not limited to, emergency lighting. ❑ 2. Lighting that is controlled by a motion sensor and photocontrol. ❑ 3. Lighting for facilities that have equal lighting requirements at all hours and are designed to operate conti-nuously. ❑ 4. Temporary outdoor lighting. ❑ 5. Externally illuminated signs and signs that are internally illuminated or have integral lamps.	Not provided at this level of detail.

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Complies	Not applicable	Requirement	Document Reference
§7.4.7: Other Equipment			
❑	❑	§7.4.7: All other equipment complies with Section 10 of ANSI/ASHRAE/IESNA Standard 90.1 with the following modifications and additions.	
❑	❑	§7.4.7.1: Motors comply with the minimum requirements in Table C-13 in Normative Appendix C. These requirements supersede the requirements in Section 10.4.1 and Table 10.8 of ANSI/ASHRAE/IESNA Standard 90.1.	Not provided at this level of detail.
❑	❑	§7.4.7.2: Supermarkets with a floor area of 25,000 ft^2 (2500 m^2) or greater recover waste heat from the condenser heat rejection on permanently installed refrigeration equipment meeting *one* of the following criteria: ❑ 1. 25% of the refrigeration system full load total heat rejection. ❑ 2. 80% of the space heat, service water heating and dehumidification reheat.	Not provided at this level of detail.
❑	❑	§7.4.7.2: If a recovery system is installed in the refrigeration system, the system does not increase the saturated condensing temperature at design conditions by more than 5°F (3°C) and does not impair other head pressure control/energy reduction strategies.	Not provided at this level of detail.
❑	❑	§7.4.7.3: The following equipment within the scope of the applicable Energy Star program complies with the relevant criteria required to achieve the Energy Star label, if installed prior to the issuance of the certificate of occupancy (see Section 7.4.7.3 a–h for a complete equipment list): ❑ a. Appliances ❑ b. Heating and cooling equipment ❑ c. Electronics ❑ d. Office equipment ❑ e. Water heaters ❑ f. Lighting ❑ g. Commercial food service equipment ❑ h. Other products ❑ Exception: Products with minimum efficiencies addressed in the Energy Policy Act (EPAct) and the Energy Independence and Security Act (EISA), if the project complies with Section 7.4.3.1a.	Not provided at this level of detail.
❑	✓	§7.4.7.4a: Commercial refrigerators and freezers comply with the minimum efficiencies in Table C-14 in Normative Appendix C.	
❑	✓	§7.4.7.4a: There are no prohibited open refrigerated display cases not covered by strips or curtains.	
❑	✓	§7.4.7.4a: Lighting loads for commercial reach-in refrigerator/freezer display cases, including all power supplies or ballasts, do not exceed 42 watts per door for case doors up to 5 ft (1.5 m) in height and 46 watts per door for case doors greater than 5 ft (1.5 m) in height.	
❑	✓	§7.4.7.4b: Commercial clothes washers comply with the minimum efficiencies in Table C-15 in Normative Appendix C.	

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Complies	Not applicable	Requirement	Document Reference
§7.4.8: Energy Cost Budget			
✓	❑	§7.4.8: The Energy Cost Budget option in Section 11 of ANSI/ASHRAE/IESNA Standard 90.1 was not used.	

The proposed and baseline buildings comply with the mandatory requirements of ANSI/ASHRAE/USGBC/IES Standard 189.1-2009 and meet the Prescriptive Option requirements. Individual certifying authenticity of the data provided in this analysis:

Signature:	Date:	
Printed Name:	License/Registration #:	
Company Name:		

Water Use Efficiency Compliance Documentation – Mandatory

Project Name: U.S. Army Criminal Investigations Command--Detachment 24	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
§6.3.1: Site Water Use Reductions			
❑	❑	§6.3.1.1: Minimum of 60% of the area of the improved landscape shall be in bio-diverse planting of native plants and adapted plants other than turfgrass. ❑ Exception: Athletic fields, golf courses and driving ranges shall be excluded from this requirement for schools, residential common areas, or public recreational facilities.	
❑	❑	§6.3.1.2: Automatic irrigation systems have been hydrozoned to water different plant materials.	
❑	❑	§6.3.1.2: Sprinklers are not spraying water directly on a building and are not located within 3 ft (0.92 m) of any building.	
❑	❑	§6.3.1.3: Irrigation system is controlled by a qualifying smart controller.	
❑	❑	§6.3.1.3: Smart controller uses evapotranspiration and weather data or on-site rain sensors or moisture sensors to adjust irrigation schedules.	
❑	❑	§6.3.1.3: Qualifying smart controllers meet the following minimum requirements: irrigation adequacy – 80 % min ET_o; irrigation excess – not to exceed 10%. ❑ Exception: Temporary irrigation systems used for plant establishment are exempt from this requirement.	
§6.3.2: Building Water Use Reductions			
✓	❑	§6.3.2.1a: Water closets (flushometer) have a max flush rate of 1.28 gal (4.8 L) per flush.	The flush rate is included in the "Type Comment" parameter for each fixture type in the Architectural BIM.
❑	✓	§6.3.2.1b: Water closets (tank-type) have a max flush rate of 1.28 gal (4.8 L) per flush.	Tank-type fixtures are not used in the design.
✓	❑	§6.3.2.1c: Urinals have a max flush rate of 0.5 gal (1.9 L) per flush.	The flush rate is included in the "Type Comment" parameter for each fixture type in the Architectural BIM.
✓	❑	§6.3.2.1d: Public lavatory faucets have a max flow rate of 0.5 gpm (1.9 L/min).	The flow rate is included in the "Type Comment" parameter for each fixture type in the Architectural BIM.
❑	✓	§6.3.2.1e: Public metering faucets have a max flow rate of 0.25 gal (1.0 L) per cycle.	Metering faucets are not used in the design.
❑	✓	§6.3.2.1f: Residential lavatory faucets have a max flow rate of 1.5 gpm (5.7 L/min).	Residential lavatory faucets are not used in the design.
✓	❑	§6.3.2.1g: Residential kitchen faucets have a max flow rate of 2.2 gpm (8.3 L/min).	The flow rate is included in the "Type Comment" parameter for each fixture type in the Architectural BIM.
❑	✓	§6.3.2.1h: Residential showerheads have a max flow rate of 2.0 gpm (7.6 L/min).	Shower heads are not used in the design.
❑	❑	§6.3.2.1i: Residential shower compartments have a max flow rate of 2.0 gpm (7.6 L/min). ❑ Exception: If the shower compartment exceeds 2,600 in^2 (1.7 m^2), an additional flow of 2.0 gpm (7.6 L/min) is permitted.	The flow rate is not included in the shower compartment family.
❑	✓	§6.3.2.2a: Dwelling unit clothes washers comply with the ENERGY STAR Program Requirements and have a max water factor of 6.0 gal/ft^3 or 800 L/m^3 of drum capacity.	
❑	✓	§6.3.2.2a: Dwelling unit dishwashers comply with the ENERGY STAR Program Requirements and have a max water factor of 5.8 gal or 22 L/full operating cycle.	
❑	✓	§6.3.2.2b: Publicly accessible clothes washer have a max water factor of 7.5 gal/ft^3 or 1000 L/m^3 of drum capacity.	
❑	✓	§6.3.2.3a: Potable water has not been used for once-through cooling.	

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Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
❑	❑	§6.3.2.3b: Cooling towers have makeup and blowdown meters, conductivity controllers, and overflow alarms.	Not provided at this level of detail.
❑	❑	§6.3.2.3b: Cooling towers have efficient drift eliminators.	Not provided at this level of detail.
❑	❑	§6.3.2.3b: Drift reductions amount to a max of 0.002% of the recirculated water volume for counterflow towers and 0.005% of the recirculated water flow for cross-flow towers.	Not provided at this level of detail.
❑	❑	§6.3.2.3c: Condensate from AC units with a capacity > 65,000 Btu/h is recovered for reuse.	There are no AC units greater than 65 MBh in the design.
❑	✓	§6.3.2.3c: Condensate from steam systems is recovered for reuse.	Steam is not accounted for in the design.
❑	✓	§6.3.2.4a: Potable water has not been used for roof spray systems to thermally condition the roof.	Roof spray systems are not included in the design.
❑	❑	§6.3.2.4b: Potable water might have been used during the plant establishment period, but it has not been used to permanently irrigate the vegetated landscape.	
§6.3.3: Water Consumption Measurement			
❑	❑	§6.3.3.1: Measurement devices with remote communication capability have been provided to collect the water consumption data for each water supply source (e.g., potable, reclaimed, rainwater) to the building that exceeds the thresholds listed in Table 6.3.3A.	Not provided at this level of detail.
❑	❑	§6.3.3.1: Both potable and reclaimed water entering the building are being monitored or sub-metered.	Not provided at this level of detail.
❑	❑	§6.3.3.1: Sub-meters have been provided for individual leased, rented, or other tenant or sub-tenant space with any building totaling > 50,000 ft^2 (5000 m^2).	Not provided at this level of detail.
❑	❑	§6.3.3.1: Sub-meters have been provided for any project, building, tenant, or sub-tenant space within a project or building where water consumption > 1,000 gal/day (3800 L/day).	Not provided at this level of detail.
❑	❑	§6.3.3.2: Measurement devices installed on systems using more than 1,000 gal/day (3800 L/day) of water are configured to communicate water consumption data to a meter data management system. At a minimum meters provide daily data and record hourly consumption	Not provided at this level of detail.
❑	❑	§6.3.3.2: Sub-metering with remote communication capabilities has been provided to collect water use data for each of the subsystems listed in Table 6.3.3B.	Not provided at this level of detail.
❑	❑	§6.3.3.3: The meter data management system is capable of electronically storing water meter, monitoring systems, and sub-meter data.	Not provided at this level of detail.
❑	❑	§6.3.3.3: The meter data management system creates user reports showing calculated hourly, daily, monthly, and annual water consumption for each measurement device and sub-meter.	Not provided at this level of detail.
❑	❑	§6.3.3.3: The meter data management system provides alarm notification capabilities to support the requirements of §10.3.2.1.2.	Not provided at this level of detail.

The proposed and baseline buildings comply with the mandatory requirements of ASHRAE/USGBC/IES Standard 189.1-2009. Individual certifying authenticity of the data provided in this analysis:

Signature: Date:	
Printed Name: License/Registration #:	
Company Name:	

Water Use Efficiency Compliance Documentation – Prescriptive

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Designer of Record:	Telephone:
Contact Person:	Telephone:
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Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
§6.4.1: Site Water Use Reductions			
❑	❑	§6.4.1: Golf courses and driving ranges use only municipally-reclaimed water and/or alternate on-site sources of water; in other landscaped areas, a maximum of one third of *improved landscape* area is irrigated with potable water – all other irrigation is provided from alternate on-site sources or municipally reclaimed water.	
❑	❑	§6.4.1: Athletic fields have been excluded from the calculation of *improved landscape* for schools, residential common areas, and public recreational facilities.	
❑	❑	§6.4.1: Potable water has been temporarily used on newly installed landscape during the landscape establishment period.	
❑	❑	§6.4.1: The amount of potable water used during the landscape establishment period does not exceed 70% ET_o for turfgrass and 55% ET_o for other plantings.	
❑	❑	§6.4.1: Municipally reclaimed water is available at a water main within 200 ft (60 m) of the project site and has been used in lieu of potable water during the landscape establishment period.	
❑	❑	§6.4.1: Once the landscape establishment period ended, irrigation water use complied with the requirements listed in §6.3.1 and §6.4.1.	
§6.4.2: Building Water Use Reductions			
❑	❑	§6.4.2.1a: For cooling tower makeup water having < 200 ppm (200 mg/L) of total hardness (expressed as calcium carbonate), at least 5 cycles of concentration have been achieved.	Not provided at this level of detail.
❑	❑	§6.4.2.1b: For cooling tower makeup water having > 200 ppm (200 mg/L) of total hardness (expressed as calcium carbonate), at least 3.5 cycles of concentration have been achieved. ❑ Exception: Where the total dissolved solids concentration of the discharge water exceeds 1500 mg (1500 ppm/L), or silica exceeds 150 ppm (150 mg/L), measured as silicon dioxide, before the above cycles of concentration are reached.	Not provided at this level of detail.
❑	✓	§6.4.2.2a: Commercial food service operations use high-efficiency pre-spray valves per §6.4.2.2.	
❑	✓	§6.4.2.2b: Commercial food service operations use dishwashers that are ENERGY STAR certified.	
❑	✓	§6.4.2.2c: Commercial food service operations use boilerless/connectionless food steamers that consume no more than 2.0 gal/h (7.5 L/h).	
❑	✓	§6.4.2.2d: Commercial food service operations use combination ovens that consume no more than 10 gal/h (38 L/h).	
❑	✓	§6.4.2.2e: Commercial food service operations use air-cooled ice machines that are ENERGY STAR certified.	
❑	✓	§6.4.2.2f: Commercial food service operations are equipped with hands-free faucet controllers within the food preparation area of the kitchen and dish room, including pot sinks and washing	
❑	✓	§6.4.2.3a: Medical and lab facilities use only water-efficient steam sterilizers.	
❑	✓	§6.4.2.3a: Steam sterilizers use water-tempering devices that only allow water to flow when the discharge of condensate or hot water from the sterilizer > 140°F.	
❑	✓	§6.4.2.3a: Vacuum sterilizers use mechanical vacuum equipment in place of Venturi-type vacuum systems.	
❑	✓	§6.4.2.3b: Medical and lab facilities use film processor water recycling units where large frame X-ray films of more than 6 inches are processed. Small dental X-ray equipment is exempt from this requirement.	

Water Use Efficiency Compliance Documentation – Prescriptive

Project Name: U.S. Army Criminal Investigations Command--Detachment 24	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
❑	✓	§6.4.2.3c: Where the digital networks are installed, medical and lab facilities use digital imaging and radiography systems.	
❑	✓	§6.4.2.3d: Medical and lab facilities use a dry-hood scrubber system. For projects that determine wet scrubber systems are necessary, the scrubber is equipped with a water recirculation system.	
❑	✓	§6.4.2.3d: For medical and lab facilities that include hood washdown systems, the hood is equipped with self-closing valves	

Water Use Efficiency Compliance Documentation – Prescriptive

Project Name: U.S. Army Criminal Investigations Command--Detachment 24	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
Building Water Use Reductions Cont.			
❑	✓	§6.4.2.3e: Medical and lab facilities use only dry vacuum pumps, unless fire and safety codes require a liquid ring pump.	
❑	✓	§6.4.2.3f(1): For filtration processes in medical and lab facilities, pressure gauges are used to determine and display when to backwash or change cartridges.	
❑	✓	§6.4.2.3f(2): For ion exchange and softening processes in medical and lab facilities, recharge cycles have been set by volume of water treated or based upon conductivity or hardness.	
❑	✓	§6.4.2.3f(3): For reverse osmosis and nanofiltration equipment in medical and lab facilities with a capacity > 100 L/hour, reject water does not exceed 60% of the feed water and is used as scrubber feed water or for other beneficial uses on the project site.	
❑	✓	§6.4.2.3f(4): For medical and lab facilities, simple distillation has not been used as a means of water purification.	
❑	✓	§6.4.2.3g: Food service operations that are located within medical or lab faciliites comply with	
❑	✓	§6.4.3a: Ornamental fountains are supplied either by alternate on-site sources of water or municipally reclaimed water.	
❑	✓	§6.4.3a: Fountains are equipped with makeup water meters.	
❑	✓	§6.4.3a: Fountains are equipped with leak detection devices that shut off water flow if a leak of more than 1 gallon per hour is detected.	
❑	✓	§6.4.3a: Fountains are able to recirculate, filter, and treat all water for reuse within the system. ❑ Exception: For fountains where alternate on-site sources of water or municipally reclaimed water are not available with 500 ft (150 m) of the building project site, potable water is allowed to be used for water features with less than 10,000 gal (38,000 L) capacity.	
❑	✓	§6.4.3b(1): Pools and spas must recover filter backwash water for reuse on landscaping or other applications, or treat and reuse backwash water within the system.	
❑	✓	§6.4.3b(2): For pools and spas that use removable cartridges, only reusable cartridges and systems are used.	
❑	✓	equipment has been used that includes a pressure drop gauge to determine when the filter needs to be backwashed and a sight glass enabling the operator to determine when to stop the backwash cycle.	
❑	✓	§6.4.3b(3): If pool and spa splash troughs are provided, they drain back into the pool or spa.	

The proposed and baseline buildings comply with the mandatory requirements of ASHRAE/USGBC/IES Standard 189.1-2009 and meet the Prescriptive Option requirements. Individual certifying authenticity of the data provided in this analysis:

Signature: Date:	
Printed Name: License/Registration #:	
Company Name:	

PARSONS BRINCKERHOFF

Page:	1 of 1
Made by:	JPB
Date:	10-Sep-2012
Checked by:	
Date:	

Subject: ASHRAE 189.1-2009 Projection Factor Calculation/SHGC Multiplier
CIDC Detachment 24

The minimum projection factor requirement is 0.5

PF = P/(D+H)

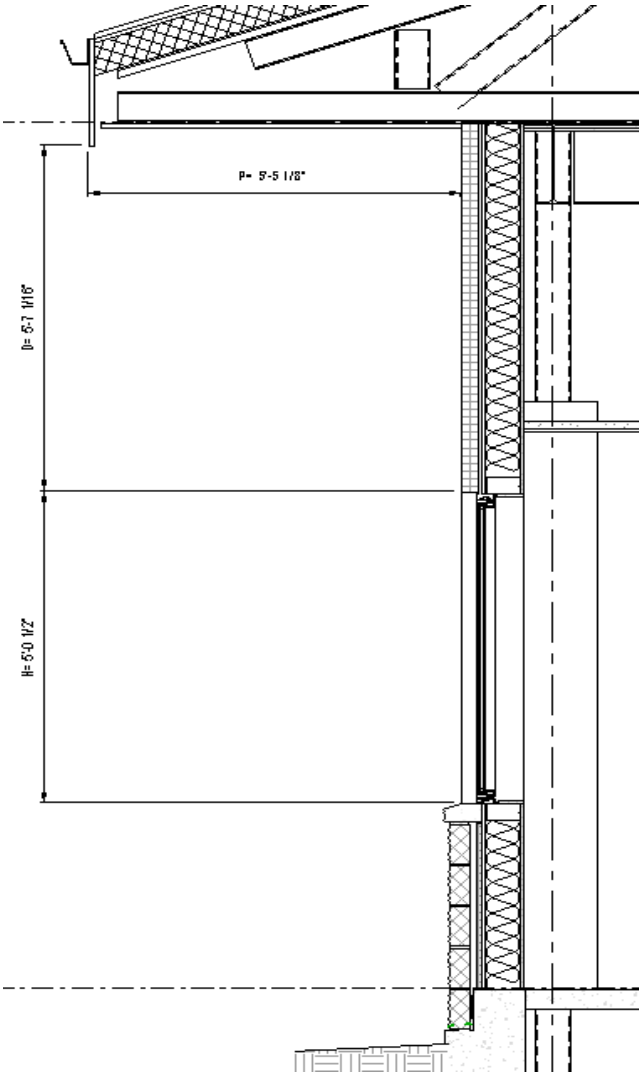
P= 65 in.
D= 67 in.
H= 60 in.

PF= 0.51

Check:

0.51 ≥ 0.50

0.51 → SHGC multiplier of 1.00 is allowed for E, S, W orientations.
SHGC multiplier of 1.00 is allowed for N orientation.



PARSONS BRINCKERHOFF Computation Sheet

page 1 of 1

made by RAGHU SINHA

date 09.12.2012

checked by

date

subject RA 24 LPD CALCULATIONS

EMERGENCY LIGHTS : (2) 1W LED LAMP FIXTURES

002	- VESTIBULE : 41 ft² / 1 EMERGENCY LIGHT	= 0.04	W/ft²
119	- CORRIDOR : 629 ft² / 3	= 0.01	
139	- CORRIDOR : 873 ft² / 4	= 0.01	
003	- VESTIBULE NORTH : 47 ft² / 1	= 0.04	
114	- CORRIDOR : 188 ft² / 1	= 0.01	
111	- CORRIDOR : 324 ft² / 2	= 0.01	
102	- CORRIDOR : 142 ft² / 1	= 0.01	
101	- VISITOR WAITING : 281 ft² / 1	= 0.01	
001	- ENTRY VESTIBULE : 1128 ft² / 1	= 0.01	